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ABSTRACT

These conference proceedings consist of 25 presentations: "Conducting Experimental Research" (Miller) "Conducting Research Overseas: Some Thoughts Based upon Experiences in the United Kingdom" (Scott); "Applying Research to the Classroom" (Wayne); "DACUM: A Competency-Based Curriculum Tool" (Norton); "A Doctoral Research Model" (Bronner); "The ERIC Database: Information for the Asking!" (Wagner); "Research: A Process for Everyone" (Miller); "An Analysis of Business Documents: Negative News Applications" (Bayless); "An Analysis of Communication Effectiveness in Public Accounting" (Cable, Frydman); "An Analysis of the Dictation Practices and Preferences of Today's Business Executives" (Andera); "Assessing the Preparation for Teaching Office Reading Skills" (Schmidt); "A Comparison of Errors Detected: Softcopy vs. Hardcopy" (Joyner et al.); "Development of a Rating Scale for Determining Importance of Ethical Issues in Business" (DuFrene et al.); "Effects of Previous Keyboarding Experience on Student Performance in High School Beginning Keyboarding/Typewriting" (Price, Crank); "How and Why Organizations Are Utilizing Desktop Publishing and the Implications for Business Education" (Perreault, Wasson); "Integrating Academic Content into Business Education: Results from Research in Illinois" (Haynes et al.); "International Business Communication: Perceptions of Importance from Association for Business Communication (ABC) Experts and Nonexperts" (Scott, Green); "Integration of the Computer into the Elementary School Curriculum: A Collaborative Case Study" (Ubelacker); "A Methodology Study Utilizing the Top 40 Misused Similar Words Based on a Ranking of the Top 75 Misused Similar Words Often Confused by Business Communication Students" (Scriven et al.); " A Proposed Analysis of the Interactive Effects between Selected Learner Characteristics and the Method of Instruction--Lecture or Experiential Learning--on Student Cognitive, Communicative and Interpersonal Achievement in Elementary Accounting at the Undergraduate and Graduate College Level" (Seda); "Putting Writing Errors in Context" (Merrier, Duff); "The Quality of Students' Work Experience in Office and Marketing Occupations: School Supervised and Non-School Supervised" (Hopkins); "Student Attitudes toward Male and Female Work Roles" (Prigge); "Study of the Career

Development and Aspirations of Women in Middle Level Management Positions in Business Firms" (Wentling); and "Using Computer Spreadsheets for Instruction in Cost Control Curriculum at the Undergraduate Level" (Buergermeister). (YLB)

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DELTA PI EPSILON

National Honorary Professional Graduate Society in Business Education

Proceedings

1990 National Research Conference

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DELTA PI EPSILON

1990 NATIONAL RESEARCH CONFERENCE

November 15-17, 1990
Columbus, Ohio

Conference Chairperson: Gail Modlin
Glencoe Division
MacMillan/McGraw-Hill

Committee Members:
James Bennett
Kevin Mulcahy
Ginger Rose
Jon Shank

WELCOME TO COLUMBUS AND TO THE 1990 DELTA PI EPSILON NATIONAL RESEARCH CONFERENCE. Your Planning Committee is very excited about the wide variety of research topics included in the program as well as the outstanding individuals who are featured speakers. Our primary goal was to meet your individual research needs.

We wish each of you a most successful conference and hope that you take home with you new ideas to use on Monday. We wish to express our appreciation to everyone who helped us put this conference together. We hope you will agree that it is exciting and that it continues the rich research tradition of Delta Pi Epsilon.

Gail Modlin

Greetings from DPE National President

Dear Friends:

The National Delta Pi Epsilon Research Conference has a long tradition in the history of our Society. It has been a key element in assisting the Society to carry out its research mission. The outstanding program of this conference reflects the strength and commitment of our research efforts, the diversity and breadth of our research interests, and the professional expertise of our membership.

This year a new research training phase has been added to our program–PROJECT COLUMBUS. I believe this will prove to be extremely beneficial to those who participate.

Special appreciation is expressed to the Research Conference Committee, under the capable leadership of Gail Modlin, and the coordinator of PROJECT COLUMBUS, Scot Ober, for planning and carrying out the arrangements for this year's conference.

On behalf of the National Executive Board of Delta Pi Epsilon, I extend to you a warm welcome to the 1990 National Research Conference. I am confident you will have a professionally rewarding experience.

Charles J. Inacker

Delta Pi Epsilon National Executive Board

National President ..... **Charles J. Inacker** *(Beta Pi)*
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CONFERENCE PROGRAM

THURSDAY, NOVEMBER 15

7:00 p.m. **NATIONAL PRESIDENT'S RECEPTION (Legislative Foyer)**

8:00 p.m. - 9:30 p.m. **GENERAL SESSION I (Governor's Ballroom B)**

Chairperson: Gail G. Modlin, Glencoe Division of Macmillan/McGraw-Hill, Columbus, Ohio

WELCOME AND INTRODUCTIONS

GREETINGS FROM DELTA PI EPSILON
Charles J. Inacker, DPE National President
California State University, Los Angeles

ROLL CALL OF STATES
Marian C. Crawford, DPE National Secretary
University of Arkansas at Little Rock

INTRODUCTION OF SPEAKER
Betty J. Brown, DPE National Vice President
Ball State University

Speaker: Judith Hoyt Pettigrew, President of Creative Consortium, Inc.

MARKET DETERMINATION: DATA, DEMOGRAPHICS, AND DEMONS

"Hark the herald angels cry, telling us to buy, buy, buy."

For all the sophisticated analytical data and advanced technological tools in the science of marketing research, marketing decisions are many times based on "intuition," "gut reaction," and, yes, even the voices of angels!

What role should marketing research play in market determination? Are there "rights" and "wrongs" in marketing research? Can it be done without retaining the services of marketing research firms? What is the CS factor?

OVERVIEW OF CONFERENCE

ANNOUNCEMENTS

FRIDAY, NOVEMBER 16

8:30 a.m. - 10:00 a.m. **GENERAL SESSION II** (Governor's Ballroom B)

Chairperson: Ginger A. Rose, The Ohio State University

WELCOME AND INTRODUCTIONS

INTRODUCTION OF SPEAKER
Charles J. Inacker, DPE National President
California State University, Los Angeles

Speaker: Elizabeth A. Regan, Ph.D., Massachusetts Mutual Life Insurance Co.

PEOPLE AND TECHNOLOGY: A RESEARCH PERSPECTIVE

Despite the growth of information systems technologies in the workplace, executives are deluged with information, and workers struggle to keep pace with increasing work loads. Apparently, organizations need to do more to assimilate technology into business operations. This means addressing the people issues and restructuring the way work is done. Dr. Regan will comment on research related to interfacing human resources and technology and discuss needed research.

ANNOUNCEMENTS

10:00 a.m. - 10:30 a.m. **REFRESHMENTS** (Legislative Foyer)

10:30 a.m. - 12:00 noon **RESEARCH REPORTS** (Senate A and B)

Chairperson: Vivian Arnold, East Carolina University

AN ANALYSIS OF BUSINESS DOCUMENTS: NEGATIVE NEWS APPLICATIONS

The study involved collecting and analyzing negative-news letters and memos used in business. A panel of three business communication instructors examined several elements in each of the documents. The type of correspondence, the approach of the document toward negative news, the use of negative words, the inclusion of alternatives, and the focus on the reader were determined for each document. The results indicated that negative-news documents in business include a variety of direct and indirect approaches.

Marsha Bayless, Stephen F. Austin State University

INTERNATIONAL BUSINESS COMMUNICATIONS: PERCEPTIONS OF IMPORTANCE FROM ASSOCIATION FOR BUSINESS COMMUNICATION (ABC) EXPERTS AND NONEXPERTS

A list of actions influencing international business communication was developed through the use of the Delphi process. Both a Delphi panel of experts and a geographically stratified random sample of nonexperts who maintained membership in the ABC and who resided in the U.S.A. evaluated the importance of the action statements using a five-point Likert-type scale. While the experts perceived 50 of the action statements to be important ones, the nonexperts perceived all 57 of the action

statements to be important ones. Factor analyses revealed that the 57 international business communication action statements can be grouped into 14 factors for the experts and 12 factors for the nonexperts. One-way analysis of variance tests revealed that perceptions of the importance of the action-statement factors are influenced by four demographic variables.

James Calvert Scott, Utah State University
Diana J. Green, Weber State College

AN ANALYSIS OF THE DICTATION PRACTICES AND PREFERENCES OF TODAY'S BUSINESS EXECUTIVES

The study examined the dictation practices and preferences of today's business executives. A majority of the respondents stated that dictation equipment was available to them for the preparation of their written communication and that over three-fourths of them have used dictation equipment. The results indicated that the development of dictation skills was critical for tomorrow's business executives, that a college-level business communication course should teach the technique of machine dictation, and that future business communication students should master the skill of speaking their words onto paper, rather than always writing them.

Frank Andera, Central Michigan University

10:30 a.m.-12:00 noon **GENERAL RESEARCH TOPICS (Legislative A)**
Chairperson: Shirley Barton, Kent State University

QUALITATIVE RESEARCH METHODS: AN ALTERNATIVE APPROACH

The content of this session includes: (1) a brief consideration of social theory and methods of research; (2) alternative ways of gathering data--quantitative versus qualitative methods; (3) methods of gathering qualitative data; and (4) specific examples of studies utilizing qualitative methodology.

Eldon Snyder, Bowling Green State University

10:30 a.m.-12:00 noon **RESEARCH ASSISTANCE (House A and B)**
Chairperson: Jon Shank, Robert Morris College

ERIC: MAKING IT EASY FOR YOU!

ERIC, the Educational Resources Information Center, is the world's largest educational database and an important source of information on business education. This session is designed to provide an overview and an awareness of the ERIC system and its relevance to business education researchers.

Judy Wagner, Center on Education and Training for Employment

DACUM: A COMPETENCY-BASED CURRICULUM TOOL

DACUM is proving to be a very effective and very efficient process for conducting job analysis as a basis for reality-based curriculum development. DACUM produces not only a rigorously identified list of the tasks that successful workers must perform but also provides for substantive input from industry experts in a way that builds strong and lasting linkages. A further analysis of each identified task can provide all of the detailed information needed to produce learning guides or other instructional materials.

Robert Norton, Center on Education and Training for Employment

FUNDING RESEARCH

How can you obtain financial assistance from Delta Pi Epsilon for your research? How do you qualify? Where do you apply? This session addresses these questions as well as other important issues related to the Delta Pi Epsilon Research Foundation.

Delta Pi Epsilon Research Foundation
Annell L. Simcoe, Foundation President
Rutgers University

12:00 p.m. - 1:30 p.m. **LUNCHEON** (Governor's Ballroom C, D, E)

Greetings from Office of Mayor, Columbus, Ohio

1:30 p.m. - 3:00 p.m. **RESEARCH REPORTS** (House A and B)

Chairperson: Robert Lundberg, Lehman College of CUNY

EFFECTS OF PREVIOUS KEYBOARDING EXPERIENCE ON STUDENT PERFORMANCE IN HIGH SCHOOL BEGINNING KEYBOARDING/ TYPEWRITING COURSES

This study investigated the following factors: amount and type of keyboarding experiences of high school beginning keyboarding/typewriting students before they enrolled in their present class; whether these factors affected speed and errors as achieved in their present high school class; and whether the factors affected the extent to which students kept eyes off fingers and used correct fingers in their present class.

Martha Price, Waubonsee Community College
Floyd Crank, DeKalb, Illinois

INTEGRATION OF THE COMPUTER IN THE ELEMENTARY SCHOOL CURRICULUM: A COLLABORATIVE CASE STUDY

In 1987 Apple Canada Education Foundation funded a project entitled "Elementary School Integration of the Microcomputer into the Curriculum" for grades 2/3. A collaborative research project between the elementary school and the university business education professor was designed. Phase I focused on developing a keyboarding curriculum; Phase II, computer-integrated language arts curriculum; and Phase III, worldwide communications through the "Apple Global Education Network." This presentation will outline the collaborative project, documented by slides and examples of students' work.

Sandra Ubelacker, University of Alberta, Canada

HOW AND WHY ORGANIZATIONS ARE UTILIZING DESKTOP PUBLISHING

The purpose of the study was to provide current information on the status of desktop publishing (DTP). The following information will be shared: types of organizations utilizing DTP technology, most popular DTP hardware and software products, types of documents being produced with DTP, factors which most influenced organizations to adopt DTP, desktop publishing training methods, and entry-level skills perceived to be most important for workers utilizing DTP.

Lynn Wasson and Heidi Perreault, Southwest Missouri State University

1:30 p.m. - 3:00 p.m. **GENERAL RESEARCH TOPICS** (Senate A and B)

Chairperson: Ann Remp, Eastern Michigan University

CONDUCTING EXPERIMENTAL RESEARCH

Experimental research may not be the most common method employed in educational research, but it has its place among our tools for accumulating knowledge. This session will address controlling errors, appropriately designing the study, and external validity concerns--issues which must be addressed in producing valid experimental results.

Larry E. Miller, The Ohio State University

1:30 p.m. - 2:45 p.m. **RESEARCH TRAINING** (Legislative A)

Chairperson: Wanda Stitt-Gohdes, University of Georgia

EXPERIMENTAL DESIGNS: RECOGNIZING AND REDUCING THREATS TO VALIDITY

The session will focus on the factors that affect the validity of the results of an experimental study. Methodology to reduce these threats will be discussed with particular focus on random selection, variable identification, and statistical tests and interpretation.

Daniel R. Wunsch, Northern Illinois University

3:00 p.m. - 3:30 p.m. **REFRESHMENTS** (Legislative Foyer)

3:30 p.m. - 5:00 p.m. **RESEARCH REPORTS** (House A and B)

Chairperson: Kenneth Martin, University of Cincinnati

A PROPOSED ANALYSIS OF THE INTERACTIVE EFFECTS BETWEEN SELECTED LEARNER CHARACTERISTICS AND THE METHOD OF INSTRUCTION--LECTURE OR EXPERIENTIAL LEARNING--ON STUDENT COGNITIVE, COMMUNICATIVE, AND INTERPERSONAL ACHIEVEMENT IN ELEMENTARY ACCOUNTING AT THE UNDERGRADUATE AND GRADUATE COLLEGE LEVEL

This study will investigate a nontraditional instructional strategy in accounting education that may prove to be a positive response to widespread complaints that accounting graduates do not know how to communicate, do not reason logically, are deficient in interpersonal skills, and cannot think creatively. Recently, Baker, Simon, and Bazelli (1987) stated that the optimal teaching mode for accounting courses is the Experiential Learning Model (ELM), since the approach accommodates the various learning styles of students while developing their communication, interpersonal, reasoning, and creativity skills. This study will assess the progress of ELM students in the areas of communication and interpersonal skills, as well as compare the cognitive achievement of the ELM students with those subjected to the traditional lecture approach.

Michael A. Seda, Fairleigh Dickinson University

EFFECTS ON ACHIEVEMENT OF USING COMPUTER SPREADSHEETS FOR INSTRUCTION IN COST-CONTROL CURRICULUM AT THE UNDER-GRADUATE LEVEL

This paper discusses how the instructional use of spreadsheets can help focus student attention on the influence of cost-control variables and provide increased practice opportunities for students learning cost-control concepts. Discussion addresses the question of whether any instructional improvements would justify increased use of computer spreadsheets for teaching content in undergraduate cost-control courses. Key words: spreadsheets, cost control, achievement, application software, instruction.

James Buergermeister, University of Wisconsin

AN ANALYSIS OF COMMUNICATION EFFECTIVENESS IN PUBLIC ACCOUNTING

CPAs at local, regional, and "Big Six" firms were surveyed to obtain their opinions of the capabilities needed for success in public accounting. These capabilities included strong communication and interpersonal skills. Staff accountants are the output of our undergraduate accounting education. Therefore, the CPAs also evaluated their staff accountants' verbal and written communication skills.

Roberta J. Cable, Pace University
Nancy Frydman, Sacred Heart University

3:30 p.m. - 5:00 p.m. **GENERAL RESEARCH TOPICS (Senate A and B)**
Chairperson: Tom Cunningham, MacMillan/McGraw-Hill

CONDUCTING RESEARCH OVERSEAS: SOME THOUGHTS BASED UPON EXPERIENCES IN THE UNITED KINGDOM

This session will address some of the important factors that a researcher must consider when planning for and engaging in various types of research activities in a foreign country. Drawing upon his recent sabbatical leave experiences in the United Kingdom of Great Britain and Northern Ireland, the presenter (1) will offer practical guidance that will assist researchers who are contemplating research-related activities in a foreign country and (2) will respond to related questions from the audience.

James Calvert Scott, Utah State University

3:30 p.m. - 5:00 p.m. **RESEARCH TRAINING (Legislative A)**
Chairperson: Dr. Wanda Stitt-Gohdes, University of Georgia

LOW RESPONSE RATES: THE ACHILLES HEEL OF SURVEY RESEARCH

Low response rates are not necessarily bad, but they do indicate the possibility that data is not representative of the population. Discussion will focus on determining appropriate sample sizes and response rates. Discussion will also cover appropriate statistical analyses and interpretations of survey data.

Daniel R. Wunsch, Northern Illinois University

SATURDAY, NOVEMBER 17

8:30 a.m. - 10:00 a.m. **GENERAL SESSION III (Governor's Ballroom B)**

Chairperson: James Bennett, California State University, Northridge

Speaker: Marty Saperstein, Saperstein Associates Inc.

BUSINESS RESEARCH: A CASE STUDY

As instructors we are familiar with a variety of research techniques and their use in improving instruction, but how do we provide students with an overview of how research will impact their lives both as a consumer and as a worker in the world of business? This session will focus on the process of business research and will include such techniques as FOCUS groups for concept testing, telephone surveys, analyses of internal documentation, FOCUS groups for testing advertising, the measuring of perceptions and attitudes--and, finally, an evaluation of the impact on the bottom line!

10:00 a.m. - 10:30 a.m. **REFRESHMENTS (Legislative Foyer)**

10:30 a.m. - 12:00 noon **RESEARCH REPORTS (House A and B)**

Chairperson: Mary V. Lundberg, Westland High School

A RANKING OF THE TOP 75 MISUSED SIMILAR WORDS THAT BUSINESS COMMUNICATION STUDENTS CONFUSE MOST OFTEN AND A METHODOLOGY STUDY UTILIZING THE TOP 40 MISUSED SIMILAR WORDS

This research sought to establish a valid rank listing of misused similar words (MSW) and to determine the most effective method for teaching the 40 most misused words. The rank listing was determined using 16 tests of sentences containing 238 MSW combinations. The three teaching methods analyzed were in-depth instruction with accompanying handout only, providing handout only, and no instruction.

Jolene Scriven and Paula Williams, Northern Illinois University
F. Stanford Wayne, Southwest Missouri State University

PUTTING WRITING ERRORS IN CONTEXT

This session will be the presentation of results of a study to determine reader reaction to 20 writing errors presented in three different contexts: a business letter, an electronic-mail message, and a business report. Subjects were members of the Association for Business Communication. Responses from members classified as business/government affiliates will be compared with responses from members classified as junior/senior college affiliates. Implications for education will also be discussed.

Thomas B. Duff and Patricia A. Merrier, University of Minnesota, Duluth

A COMPARISON OF ERRORS DETECTED IN SOFTCOPY VS. HARDCOPY

Rapidly advancing technology has altered the structure of the office with the majority of office employees using microcomputers and related software to produce business documents, with error correction occurring at the softcopy stage--on the monitor. This study was designed to identify if the ability to accurately detect errors in keyboarded text is affected by the medium used to detect errors.

Randy L. Joyner, East Carolina University
B. June Schmidt and Jeffrey R. Stewart, Jr., Virginia Polytechnic Institute and State University

10:30 a.m. - 12:00 noon **RESEARCH REPORTS** (Senate A and B)

Chairperson: James Calvert Scott, Utah State University

DEVELOPMENT OF A RATING SCALE FOR DETERMINING THE IMPORTANCE OF ETHICAL ISSUES IN BUSINESS

The purpose of this study was to determine the important ethical issues facing business as viewed by business academicians and business practitioners in two Southern university communities. Respondents were asked to rate the importance of each of 52 potential moral/ethical issues presented in the survey. Comparisons of academician responses with business practitioner responses were made. The rankings of issues will lead to the development of a Kohlberg-type instrument for assessing business ethical orientation.

Debbie DuFrene and Florence E. Elliott-Howard, Stephen F. Austin University
Larry G. Daniel, University of Southern Mississippi

STUDENT ATTITUDES TOWARD MALE AND FEMALE WORK ROLES

Do secondary students hold traditional attitudes toward male and female work roles; and, if so, can educational equity materials provide learning experiences to change students' traditional attitudes to contemporary attitudes?

To answer these questions, an attitude-assessment instrument was administered to 346 students. Three class periods were then devoted to teaching educational equity materials, and a post-attitude assessment was administered.

The pre-assessment indicated that 42 percent of the students held traditional attitudes. The pre- to post-assessments indicated that the educational equity materials helped students develop more contemporary attitudes.

Lila Prigge, University of North Dakota

A STUDY OF THE CAREER DEVELOPMENT AND ASPIRATIONS OF WOMEN IN MIDDLE-LEVEL MANAGEMENT POSITIONS IN BUSINESS FIRMS

This study was conducted to determine the career development and aspirations of women in middle-level management positions in business firms. The major method of this research study was the individual case study. Case studies relied on face-to-face interviews with a sample of 30 women in middle-level management positions in 15 *Fortune* 500 companies. The information obtained from this study can be used by business educators at the high school and college levels who work with the career planning and development processes for women.

Rose Mary Wentling, Illinois State University

10:30 a.m. - 12:00 noon **GENERAL RESEARCH TOPICS (Legislative A)**

Chairperson: Inge Klopping, Bowling Green State University

IS IT REALLY A JUNGLE OUT THERE? SOME SUGGESTIONS FOR EMPIRICAL RESEARCH IN BUSINESS ETHICS

Most business ethicists are philosophers. Their methodology is that of conceptual analysis and the application of traditional moral theory to business. Yet, business ethics grows out of human action and interaction. How people actually do behave in ethically ambiguous situations is at least as important as how they should behave. This calls for empirical research. Indeed, philosophers have a good idea of what questions they would like empirical researchers to study. I shall try to formulate some of those suggestions.

Jim Child, Bowling Green State University

12:00 noon - 1:30 p.m. **Lunch (unscheduled)**

1:30 p.m. - 3:00 p.m. **RESEARCH REPORTS (Senate A and B)**

Chairperson: Randy Joyner, East Carolina University

INTEGRATING ACADEMIC CONTENT INTO BUSINESS EDUCATION: RESULTS FROM RESEARCH IN ILLINOIS

Faculty at Illinois State University and University of Illinois collaborated to pilot test and evaluate Applied Academics curricula in Illinois. The researchers collected data on the impact of Applied Communication and Applied Mathematics curricula on students and programs. In addition, they assessed, through case studies, procedures and guidelines that educators can follow to cause academic and vocational education teachers to work cooperatively.

Data revealed several positive aspects of the Applied Academics curricula that would support the use of these materials in business education classes. Data also indicated drawbacks, concerns, and key processes to consider when using these materials, as well as how to facilitate collaboration between academic and vocational teachers.

Thomas Haynes, Illinois State University
Dale Law, Jerry Pepple, and Constanza Valdez, University of Illinois

ASSESSING THE PREPARATION FOR TEACHING OFFICE READING SKILLS

This research examined the extent that prospective business teachers develop the office reading skills of proofreading, verifying, and comprehending detail. On a 60-item test they had a mean score of 51.4, or 86 percent of the items correct. Their performance was considerably better than high school business students on the same items, but not at a level desirable for setting an example in a teaching situation. They were especially weak in proofreading, scoring only 80 percent, or 16 out of 20 items, correct.

B. June Schmidt, Virginia Polytechnic Institute and State University

THE QUALITY OF STUDENTS' WORK EXPERIENCES IN OFFICE AND MARKETING OCCUPATIONS: SCHOOL SUPERVISED AND NON-SCHOOL SUPERVISED

This study was designed to compare the quality of work experiences of students who participate in secondary-school marketing and office education cooperative education programs with students who work in similar types of jobs but who are not enrolled in such programs. For purposes of the study, indicators of a quality work experience were identified as use of basic academic skills on the job (reading, writing, mathematics), work complexity, work autonomy, work variety, opportunity to think and problem solve on the job, work-related learning, amount of training, and amount of contact with adult role models. Findings and related issues will be discussed.

Charles R. Hopkins, University of Minnesota

1:30 p.m. - 3:00 p.m. **RESEARCH TRAINING (Legislative A)**

Chairperson: David Hyslop, Bowling Green State University

RESEARCH: A PROCESS FOR EVERYONE

The conduct of research to contribute to knowledge in a profession is the responsibility of each member of the group. The conduct of research is not as difficult as some perceive it, particularly if one examines the purposes of the investigation and controls the potential errors. This session will address how research can be made to be "fun" and enthusiastic as it is passed on to the next generation of scholars.

Larry E. Miller, The Ohio State University

1:30 p.m. - 3:00 p.m. **GENERAL RESEARCH TRAINING (House A and B)**

Chairperson: Wanda Blockhus, San Jose State University

A DOCTORAL RESEARCH MODEL: SOME GUIDELINES

While guidelines for doctoral research vary widely within and between institutions, helpful models do exist to assist in this demanding research process. One such doctoral model is presented--along with a discussion of its major components--in order to help guide the beginning researcher through the doctoral maze. These components are segmented by dissertation chapters and range from the theoretical rationale and method through the summary, conclusions, and recommendations. Time for discussion will be provided.

Michael Bronner, New York University

3:00 p.m. - 3:30 p.m. **REFRESHMENTS (Legislative Foyer)**

3:30 p.m. - 4:30 p.m. **GENERAL SESSION IV (Governor's Ballroom B)**

Chairperson: Kevin Mulcahy, California State University, Northridge

PRESENTATION FROM PROJECT COLUMBUS

Scot Ober, Ball State University
Sharon Lund-O'Neil, University of Houston

PANEL WRAP-UP

APPLY RESEARCH TO THE CLASSROOM

You have read the research. You understand the implications. How should they affect your instructional strategies? This panel of experts will share their ideas with you--ideas you can use in your classroom on Monday!

Betty J. Brown, Moderator
Ball State University

David P. Dauwalder
California State University, Los Angeles

B. June Schmidt
Virginia Polytechnic Institute and State University

F. Stanford Wayne
Southwest Missouri State University

PRESENTATION OF BEST PAPER AWARD

Gail Modlin, Chairperson, National Research Conference Committee

RESEARCH CONFERENCE BANQUET

6:00 p.m. - 7:00 p.m. **SOCIAL HOUR** (Governor's Foyer)

7:00 p.m. - 9:00 p.m. **BANQUET** (Governor's Ballroom)

Host Chapters: Delta Chapter, University of Cincinnati
Cincinnati, Ohio

Rho Chapter, The Ohio State University
Columbus, Ohio

Beta Eta Chapter, Bowling Green State University
Bowling Green, Ohio

Music: Danny and April Bunnelle

Speaker: Phil Sorentino, Human Consultants, Inc.

HUMOR--YOUR KEY TO ENJOYING YOUR WORK, YOUR FAMILY, AND YOURSELF

Concluding Remarks: Charles J. Inacker, DPE National President
California State University, Los Angeles

PROJECT COLUMBUS

Exploring the World of Research

Scot Ober, Coordinator, Ball State University
Sharon Lund O'Neil, Assistant Coordinator, University of Houston
Judith J. Lambrecht, Team A Leader, University of Minnesota
B. June Schmidt, Team B Leader, Virginia Tech
David P. Dauwalder, Team C Leader, California State University, L.A.

THURSDAY - NOVEMBER 15, 1990

3:00 p.m. - 5:00 p.m.	**Project Columbus Session 1**	
	Welcome and introductions	Scot Ober
	Conference overview and organization	Sharon O'Neil
	Developing a proposal	Scot Ober

FRIDAY - NOVEMBER 16, 1990

8:00 a.m. - 10:00 a.m.	**Project Columbus Session 2**	
	Developing and administering a questionnaire	Judy Lambrecht
	Conducting interviews	June Schmidt
	Collecting secondary data	Dave Dauwalder
	On-line searching	Sharon O'Neil
10:00 a.m. - 10:30 a.m.	Refreshment Break	
10:30 a.m. - 12:00 noon	**Project Columbus Session 3**	
	Team meetings: Planning the data collection; making work assignments	
	Team A--Planning the questionnaire	Judy Lambrecht
	Team B--Planning the interviews	June Schmidt
	Team C--Planning the literature review	Dave Dauwalder
1:30 p.m. - 3:00 p.m.	**Project Columbus Session 4**	
	Team meetings	
	Team A--Administer the questionnaire and key the data into the computer	Judy Lambrecht
	Team B-- Conduct the interviews	June Schmidt
	Team C--Collect and review the secondary data	Dave Dauwalder
3:00 p.m. - 3:30 p.m.	Refreshment Break	
3:30 p.m. - 5:00 p.m.	**Project Columbus Session 4 (continued)**	
5:00 p.m. - 5:30 p.m.	**Project Columbus Session 5**	
	Data-collection reports from the three team leaders	Judy Lambrecht June Schmidt Dave Dauwalder
7:00 p.m. - 8:30 p.m.	**Project Columbus Session 6**	
	Analyzing data	Scot Ober
	Using statistical-analysis software	Judy Lambrecht

8:30 p.m. - 8:45 p.m.	Refreshment Break	
8:45 p.m. - 10:00 p.m.	**Project Columbus Session 7**	
	Team meetings:	
	Each group analyzing and writing up its part of the procedures and the findings for each subquestion or for the literature review	Judy Lambrecht June Schmidt Dave Dauwalder

SATURDAY - NOVEMBER 17, 1990

8:00 a.m. - 8:30 a.m.	**Project Columbus Session 8**	
	Data-analysis reports from three team leaders	Judy Lambrecht June Schmidt Dave Dauwalder
3:30 p.m. - 4:30 p.m.	**DPE Research Conference General Session III**	
	Project Columbus--Overview	Scot Ober
	Project Columbus--Research report	Sharon O'Neil
	Wrap-up	Scot Ober

Co-Hosts for Refreshment Breaks

1990 DPE National Research Conference

Alpha (New York University)
Gamma (University of Pittsburgh)
Delta (University of Cincinnati)
Eta (University of Denver)
Nu (University of Kentucky)
Omicron (University of Iowa)
Pi (Ball State University)
Rho (Ohio State University)
Upsilon (University of Mississippi)
Phi (University of Minnesota)
Omega (George Peabody College for Teachers)

Alpha Gamma (University of Houston)
Alpha Delta (Emporia State University)
Alpha Epsilon (University of North Texas)
Alpha Zeta (Temple University)
Alpha Eta (University of Wisconsin--Madison)
Alpha Iota (University of Colorado)
Alpha Kappa (San Francisco State University)
Alpha Lambda (Michigan State University)
Alpha Nu (University of North Dakota)
Alpha Xi (Hunter College of CUNY)
Alpha Omicron (University of California, L.A.)
Alpha Tau (University of Northern Iowa)
Alpha Upsilon (University of Nebraska)
Alpha Phi (Northern Illinois University)
Alpha Chi (Rider College)
Alpha Psi (Mankato State University)

continued

Co-Hosts Continued

Beta Delta (University of Georgia)
Beta Epsilon (San Jose State University)
Beta Zeta (Indiana State University)
Beta Eta (Bowling Green State University)
Beta Theta (University of Wisconsin--Whitewater)
Beta Lambda (Shippensburg University of Pennsylvania)
Beta Mu (Central Connecticut State University)
Beta Nu (Utah State University)
Beta Omicron (Southern Illinois University-Carbondale)
Beta Pi (California State University)
Beta Sigma (University of Wisconsin--Eau Claire)
Beta Phi (Montclair State College)

Gamma Alpha (Eastern Michigan University)
Gamma Beta (Trenton State College)
Gamma Gamma (Virginia Commonwealth University)
Gamma Zeta (University of Southern Mississippi)
Gamma Eta (Middle Tennessee State University)
Gamma Theta (Arkansas State University)
Gamma Iota (University of the District of Columbia)
Gamma Xi (Bloomsburg University of Pennsylvania)
Gamma Omicron (Oregon State University)
Gamma Pi (University of Arkansas)
Gamma Tau (University of Central Arkansas)
Gamma Upsilon (Robert Morris College)
Gamma Phi (Central Washington University)

PART I
GENERAL RESEARCH TOPICS

Conducting Experimental Research

Larry E. Miller
The Ohio State University

Abstract

Experimental research may not be the most common method employed in educational research, but it has its place among our tools for accumulating knowledge. Controlling errors, appropriately designing the study, and external validity concerns are all issues which must be addressed in producing valid experimental results.

Introduction

This presentation will examine research whose purpose is to control, which tests hypotheses of causal relationships between variables. We will not enter the ongoing philosophical debate about what constitutes cause, causality, whether or not cause ever exists, or the various existing positions on positivism. Therefore, suffice it to say, for definitional purposes, that our purpose is to "test hypotheses of causal relationships between variables."

Variables

Let us begin with a quick review of the term variable. A variable is:

- a characteristic by which persons or objects can be described
- a characteristic that does vary and can be put on a continuum or spectrum
- a characteristic that can change from time to time for given persons or objects, or change (vary) from person to person or object to object
- a characteristic with more than one level

(Contrasted with a "Constant" which does not vary.)

Many words are used to modify the word variable. A common definition of some of these may be helpful and provide continuity to today's presentation.

Independent Variable

The thing one thinks will produce a difference and the thing the experimenter changes somehow. Similar terms are:

Presumed cause
Antecedent
Variable predicted from
"Denoted as X"

Treatments
Factors

The independent variable can be subdivided into various types. The types are attribute, potentially manipulable but not manipulated, and active. The latter is the primary focus of experimental research as at least one active variable must exist if a study is to be classified as experimental. The study can have any number of the other two types, but it must have at least one active variable. Some experimental studies, obviously, may have more than one active variable, too.

Further, one needs to be able to distinguish between the independent variable and the levels of the independent variable. Remember that the independent variable must have more than one level to even be called a variable. The language used with the levels of the independent variables sometimes becomes confusing. Some writers will talk about the treatment, which usually constitutes a new level of the independent variable which they are going to compare with another level. For example, they may be comparing Computer Assisted Instruction (CAI) with the conventional way of teaching math. The independent variable is "method of teaching." The levels of the independent variable are (1) CAI method and (2) conventional method. One should note that some researchers will refer to the independent variable as the treatment, and others will call the "new" method, CAI, the treatment or the experimental group and the other level a control group. To further complicate matters, the second group will sometimes be called a comparison group instead of a control group.

When one then reads, or designs, research with placebo groups, and blind and double blind studies; the whole thing can get semantically confusing. So, I would prefer to define these terms and use them consistently in one manner for the sake of clarity, particularly in using them for teaching about research. Further, I believe it is helpful to our dissemination efforts if we are rather consistent across our profession.

I use treatment and experimental group to interchangeably describe a group who receives a "new level" of the independent variable. The term "control group" is reserved for

a group who receives "no" amount of (absence of) the independent variable. A "comparison group" is used to describe a group who receives the "old/usual/conventional" level, or another level of the independent variable. A "placebo" group is one who receives a "fake" level of the independent variable.

Dependent Variable

The dependent variable is the thing that is supposed to change and the thing that should be affected. Similar terms are:

Presumed effect
Consequence
Variable predicted to
"Denoted as Y"
Criterion
Observation

One should note that the term "levels" is not applied when referring to dependent variables, but is reserved exclusively for reference of the independent variable.

Extraneous Variables

Any alternative explanation (variable) for the effect of X upon Y. A study is designed to control all extraneous variables in order that the researcher can say that the results obtained are because of the administration of the independent variable and not because of some "other" variable. Similar terms are:

Intervening
Confounding
Contaminating

Whenever a critic of your research notes that you have any of these, they are "socking you right in the nose." In essence, they are saying that your work is probably invalid since an extraneous variable could account for the results that you got and not the independent variable which you controlled. A researcher must work to design a study so that as many "alternative explanations," extraneous variables, are controlled as possible if they want to produce valid research. To fail to do so produces sloppy, poor research.

In the experimental case, Campbell and Stanley (1963) did us all a great service when they classified the potential extraneous variables and labeled then "treats to internal validity." Remember the question they posed relative to internal validity? The question was: "Was it really the treatment which produced the difference in this particular experimental instance?" Obviously, if "history" or one of the other threats to validity can explain why the results were produced, then the effect of the treatment is unknown and the study is not valid.

Design for Control

Control, in scientific research, means several things. "...scientist tries systematically to rule out variables that are possible 'causes' of the effects he (sic) is studying other than the variables that he (sic) has hypothesized to be the 'causes'" (Kerlinger, 1964, p. 9).

The two purposes of research design are to (1) provide answers to the research questions, and (2) control variance. Kerlinger (1964, pp. 307-313) describes the "Maxmincon Principle" as a way to conceptualize the integration of control and design.

MAXimize the systematic variance (levels of the independent variables) under study. Make the levels as different as practical if you wish to produce variability in the dependent variable. For example, to study the effect of room temperature upon learning with one level of the independent variable (temperature) being 68 degrees Fahrenheit and the other level 69 degrees would probably not produce difference in student learning. However, what if the experimenter made the levels to be 34 and 68 degrees?

MINimize error variance (errors in the measurement of the dependent variable). Surely, each of us now knows the importance of using measurement instruments of appropriate validity and reliability. One could have the most effective treatment ever conceived, but if the instrumentation is not sensitive enough to feather-out the effect (or was invalid or unreliable), then the study may not be able to show the effect of the independent variable.

CONtrol extraneous variables; unwanted variables that might affect the outcome (as previously described). There are four ways to control such variables:

(1) eliminate the variable as a variable -- hold it constant, i.e., study only one level (homogeneous grouping) of that variable; e.g., if gender were a potential threat to the method of teaching mathematics, then study only women (or men). This would ultimately have an affect upon the external validity, generalizability, of the study, but at least the researcher would have some confidence that the results are true for the group that was studied. To have valid results for a limited group is better than having invalid results for a large group.

(2) randomization -- best way, most powerful tool to assure initial equality of the groups. Groups are theoretically equivalent on all dimensions (characteristics) if randomization is used.

(3) build the variable into the design as an independent variable so you can extract from the total variance (in Y) the variance due to the potentially extraneous variable. Once it is built into the study then the variable

is no longer extraneous, but controlled and/or measured. Its effect can then be analyzed statistically through interaction, analysis of covariance or some of the other techniques.

(4) as noted with #3, the use of statistics can be interpreted as another means of controlling extraneous variables. Such control would assume that the researcher can quantify the effects in order to analyze for any contaminating effects.

Control also implies ruling out threats to valid inference:

(1) control over the research environment -- no environment offers total control

(2) control implies the ability to determine which units receive a particular treatment (level of the independent variable) at a particular time

(3) control of a particular threat to valid inference (such as threats to external validity, either population or ecological validity)

Threats to Validity

The results of a study can be invalid if the researcher does not exercise proper control to assure that the treatment caused the effect, and not something else, and to assure the results are valid for the group to whom he/she wishes to generalize. Campbell and Stanley (1963) saved researchers a lot of grief when they made sense out of the threats and classified them as threats to internal and external validity.

Internal Validity

The question addressed by internal validity is "Did the experimental treatments make a difference in this study?" (or result from some intervening variable?) The essential element is that the researcher must be able to say that the treatments did cause the effect and not something else. The threats are briefly presented here; but, if one is unfamiliar with them, a thorough review of Campbell and Stanley should be made.

1. HISTORY -- "Things occurring between first and second measurement beside the treatment variable." This was the initial definition of Campbell and Stanley, but what if you have a design without a first measurement? Well, obviously, it would still be a threat in a design such as: X O.

   How does one control the threat? Experimental isolation is one alternative. Design selection is the best control. Select an experimental design. One should also carefully monitor the study to see if "history" is occurring and keep a log book or diary. (Also be aware of "Unique Intrasession History" as a potential threat; e.g., fire alarm going off in the middle of the posttest.)

2. MATURATION -- Processes operating within the subjects as a function of the passage of time: growing older, stronger, more tired, etc. Control would be through randomization with a control group, then any maturation should manifest itself equally in both groups at the same rate. Secondly, use relatively mature people to start with; and thirdly, minimize the length of the experiment.

3. TESTING -- The effect that taking one test has upon the performance of subjects upon a second test. Some call this "pretest sensitization" or just "sensitization." People learn what is to be on the test or in the instruction and, thus, do better on the next test. People could do better, perhaps, even without the treatment.

   Control would be randomization with a control group; or, better yet, just do not give a pretest at all!

4. INSTRUMENTATION -- Scorers, observers or the calibration of instruments could change during a study and produce a change in the data which is not due to the treatment. Imagine a pretest that is a real "bear" (producing low scores) and a posttest which is a "pud"--easy--(producing high scores); therefore, very high gain scores would be produced which would confound the measurement of the effects of the treatment, or perhaps make the measurement invalid.

   Use a fixed, printed test of high validity and reliability. If observers are used, keep them ignorant of which group is which (blind) and randomly select tapes, students, etc. Show inter-rater and intra-rater reliability.

5. STATISTICAL REGRESSION --Groups which are selected on the basis of an extreme score tend to regress toward the mean of the group on the next measurement. Such a subtle threat has shown remarkable gains for "disadvantaged, special needs, etc." students; and has made it extremely difficult for a program for the "gifted" to show any gains or improvement.

   Control can be exercised by randomly assigning from the same pool so that the control group (comparison group) should regress at the same rate as the experimental group. One should also identify the "outriders" or "artifacts" and take appropriate statistical steps to analyze data.

6. SELECTION BIAS -- Comparison groups are not chosen in the same manner; or, said another way, the experimental and control (comparison) groups are chosen differently. One might use volunteers for a new way of

teaching swimming in Physical Education and compare them to students in a required physical education class in swimming.

Control is developed by randomization. Above researcher would be better off to randomly assign from the volunteers, and have an internally valid study, for a limited sample size than to have a study both internally and externally invalid with larger numbers.

7. EXPERIMENTAL MORTALITY -- Loss of respondents! Subjects drop out of the study, leave, move or just do not show up for the components of the study.

   To control, try to get measurement data on all subjects, i.e., go after them! If one cannot get pretest or posttest data, use appropriate procedures for accommodating "missing data." If someone missed the treatment, but the researcher has pretest and posttest data; Campbell and Stanley say to use the data. One needs to determine if the absence is due to the treatment (boring, too difficult, too easy) which may speak to the nature of the study; so, if subjects drop out, find out why. Differential mortality is more of a problem than just losing a few from each level of the treatment as it may say something about the nature of the treatment.

8. SELECTION-MATURATION INTERACTION -- Effects of complex multi-group quasi-experimental designs being confused with the effect of the experimental variable.

   One can control this threat by design selection.

External Validity

The questions addressed by these threats have to do with "To whom can the results be generalized?" and "To what other environments (settings/ecology) can the results be generalized?" The first question would be labeled "Population Validity" and the second "Ecological Validity" by Bracht and Glass (1968). The threats to external validity can be called "interaction effects" (Note the wording of the categories of the threats by Campbell and Stanley). In other words, the threats to external validity involve the interaction of the treatment and some other variable, for example, the interaction of selection with the treatment. These interactions then represent cases where the results of the experiment are applicable only to a specific situation or group. Thus, the results cannot be generalized to other settings or groups. External validity has to do largely with factors working through the treatment rather than factors directly affecting the dependent variable as in the case of internal validity.

Population Validity

For what groups of subjects are the results true?

One should note that a distinction is made between the experimentally accessible population and the target population. The target population is the total group of subjects about whom the experimenter is attempting to learn something, and to whom one wishes to generalize. The experimentally accessible population is the population of subjects that is available to the experimenter.

If a researcher randomly selects subjects from an experimentally accessible population, he/she can generalize results to that population within the limits of the sampling error. Note that this is not generalizing to the target population. Even if one uses the entire accessible population, as we sometimes do in vocational education, one limits generalizations to the population from whom the sample was drawn.

Interaction of personological variables and treatment

Reference is made here to the interaction between the treatment and the characteristics of the subjects. For example, method of teaching "A" may work differently on students of low ability than on students of high ability. If we do not know this, we could be making false generalizations to the population. Interaction is best understood graphically. When one is calculating ANOVA, for example, watch for significant interactions and then graph them to make sense out of what they are telling you. One should plot the dependent variable on the ordinate and the characteristic on the abscissa with the levels of treatment plotted on the face of the graph. One should learn about "ordinal" and "disordinal" interaction. Such interactions might tell us that the "new" treatment should only be recommended for the low ability students.

The implications of this section are clear. When possible and we think appropriate, we should build characteristics of subjects (personological variables) into the design so that results can be assessed separately for each variable.

Ecological Validity

For what situations are the results true? This question forms the major concern in the area.

1. Describe the independent variable explicitly so that the results can be replicated. All operations performed must be sufficiently described to permit others to reproduce the set of operations. One often sees this detail for the "new" level of a treatment and without the

detail for the "old," "traditional," "conventional," or "usual" level.

2. Multiple-treatment interference. Sometimes treatments are administered consecutively to the same subjects. The effects of the initial treatment is possible to measure, but problems arise when estimating the effect of subsequent treatments. It is a bit like "pretest sensitization" and can happen when subjects are in more than one experiment. The researcher cannot separate the effects of later treatments without the initial treatment(s). One could only generalize to populations which had had the prior treatments.

3. Hawthorne effect. Subjects knowing they are participating in an experiment may cause them to behave differently than they would otherwise and the results may not be due just to the treatment and, thus, not generalizable to non-experimental settings. Some recent research has indicated that the effect is not as great as it used to be or as great as thought, particularly as students have been experimented-on much more than in the past. The motivation to "do well," "do the right thing," or "to work harder than ever to help out the researcher" may not be as great as once perceived. Medical researchers use "placebo" level of treatment to help defray the extent of the Hawthorne effect.

4. Novelty and disruptive effects. These are closely related to the Hawthorne effect. New and unusual experimental treatments (say, the first time microcomputers are used in a school) may prove superior to conventional methods because it is new and novel. The Postelwaite results with the audio-tutorial method at Purdue University is a case in point as the professors in a Soils course in Agronomy could not get results as good. When the "newness" wears off, the positive outcomes may disappear.

5. Experimenter effect. The researcher may unintentionally, and to some indeterminate extent, affect the behavior of the subjects. One particular type of researcher may elicit a given effect. Raters are an example. One may want to make raters an independent variable in the study. Generalizability (G-study) models have some prospects for examining the results (D-study) of this effect.

6. Pretest sensitization. Pretest may sensitize the subjects as to what will happen in the treatment. Without a pretest, others could not replicate the results. Self-report (affective) pretests may be particularly problematic. Effect on academic achievement is thought to be less severe. One can use a design without a pretest.

7. Posttest sensitization. Treatment effect might only arise if a posttest is administered, i.e., the posttest helps the student finally "put it all together" which might not have happened without the posttest. A well-designed posttest may actually teach the concept related to the treatment.

8. Interaction of history and treatment effects. Even though randomization with a control group will control the internal validity threat of history; the researcher may only be able to generalize the results to situations where the treatment is administered and the history threat occurs. Replication, over time, would be one way of estimating the existence of interaction between history and the experimental treatment.

9. Measurement of the dependent variable. Like the Min portion of the "Maxmincon Principle," the dependent variable must be valid and reliable. One must consider the reactive effects of measurement if more than one test is used, and may wish to consider unobtrusive measures.

10. Interaction of time of measurement and treatment effects. The effect of the treatment which is measured right after the treatment may not be maintained at some later time. One should be careful not to generalize to other periods of time. A design which includes measurement of the dependent variable at several points in time will increase the external validity of the results.

References

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Kerlinger, F. N. (1964). *Foundations of behavioral research* (2nd ed.). New York: Holt, Rinehart and Winston, Inc.

Conducting Research Overseas: Some Thoughts Based Upon Experiences in the United Kingdom

James Calvert Scott
Utah State University

Abstract

Before an otherwise competent business education researcher engages in an overseas research activity, he or she should carefully consider a number of special factors. Among them are the cultural environment of the foreign locality, the business education researcher's cultural and linguistic fluency in the foreign locality, the attitudes toward access to information in the foreign locality, the business community in the foreign locality, the business education community in the foreign locality, the research-related resource constraints in the foreign locality, and the effects of conducting overseas research on the business education researcher.

Introduction

Conducting research in an exotic overseas location is a dream shared by many business educators, including members of Delta Pi Epsilon. Is such a dream a fantasy or a reality? Is researching overseas an impossibility or a possibility for an American business educator? How can that business educator who has a definite interest in and a suitable background for research determine if he or she should conduct a foreign-based research activity? What are some of the special factors beyond basic competence as a business education researcher that he or she needs to consider?

The purpose of this article is to share some thoughts regarding some of the special factors that an otherwise competent business education researcher ought to consider before he or she makes a commitment to or actually engages in an overseas research activity. Among these considerations are the cultural environment of the foreign locality, the business education researcher's cultural and linguistic fluency in the foreign locality, the attitudes toward access to information in the foreign locality, the business community in the foreign locality, the business education community in the foreign locality, the research-related resource constraints in the foreign locality, and the effects of conducting overseas research on the business education researcher. By considering the ramifications of such important factors as these, the would-be overseas business education researcher can intelligently decide whether or not conducting a foreign-based research activity is wise for him or her.

Understand the Cultural Environment of the Foreign Locality

To be successful in any type of research activity, a business education researcher must understand the local cultural environment in which the investigation occurs. This is especially important when that environment is foreign and the business education researcher is an outsider, not a native of that cultural environment.

Any group of natives reflects the culture of its locality, the learned, shared, unifying, and interrelated values and assumptions that influence its behaviors. Furthermore, every locality has its own unique and distinctive culture that differentiates it from that of other places (Scott, 1989). A business education researcher must clearly understand the peculiar but important cultural factors that influence human behavior. Some of these factors may be similar to those of the American business education researcher's own native culture; others may be different.

For example, to understand the United Kingdom of Great Britain and Northern Ireland (U.K.), its people, and its institutions, it is necessary to realize that since the Norman invasion of 1066, no one has invaded what is now the U.K. and vanquished its people. As a result, the British people have developed a protective insularity that is difficult to penetrate even today. They scrupulously guard their own privacy, minding their own business and wishing others would do likewise. In general, the British people tend to be honorable, loyal, considerate, and trustworthy. While in theory they find ambition to be too virtuous not to praise, in practice they frown upon it as tawdry (Gelb, 1982). The British people have an easy capability for contentment and are united in the belief that most change is neither desirable nor possible, which rules out improvement (Walmsley, 1986). Consequently, they are resigned to "muddle through" as they are so fond of saying.

Unlike their European neighbors, the British people did not experience a revolution during the 19th century. Vestiges of historic and largely wealth-based social distinctions among landowners, tradesmen, and laborers have survived long after they had real economic significance. The resulting class system has been perpetuated by the conservative

nature of the British people and by their willingness to accept their allotted stations in life. While constraints do not allow a discussion of the upper classes including the hereditary monarchy, the middle classes, and the lower classes, it should be pointed out that there is little resentment of members of higher classes by members of lower classes, who seem reconciled to their lots in life. Some critics have charged that this complacency and limited ambition have contributed to the economic decline of the country, but international competition has increasing brought about more aggressive and flexible attitudes, especially among British businesspersons (*The Economist Business* , 1987).

In spite of the facts that the U.K. and the United States of America (U.S.A.) have a common language, many historic linkages, and a variety of similarities, they do not share the same cultural environment. They each have their own distinct, peculiar cultural environments.

In fact, the cultural environment in which business education research takes place overseas will be different--probably profoundly different--from that of the U.S.A. The business education researcher who works overseas must acknowledge the many differences between his or her native cultural environment and the foreign cultural environment if his or her research activity is to be appropriate for and successful in that foreign cultural environment.

Be Culturally and Linguistically Fluent in the Foreign Locality

The overseas business education researcher must be culturally and linguistically fluent if he or she is to be successful. In other words, the business education researcher must be sufficiently knowledgeable about the foreign living and working environment and its language patterns so that he or she can function in a manner similar to that of an informed native. He or she ought to react consistently in a manner that is sensitive to and appropriate for the foreign cultural environment in which the research activity takes place.

It is challenging for a business education researcher to develop sufficient knowledge about a foreign cultural environment so that he or she can function in that environment like a native. Becoming fully acculturated and attaining this high standard of consistent performance is necessary since even relatively minor insensitivities to the expected standards of conduct can alienate natives of other cultures and jeopardize the research activity. Such faux pas may be interpreted by natives of foreign localities as "ugly American" behaviors that denigrate local customs, even if that was not the intent of the American business education researcher. Ignorance of local customs is not a satisfactory excuse for unacceptable behavior in any setting.

When contemplating overseas research, a business education researcher must try to learn as much as is possible about the foreign locality where the research might be conducted. Some of this necessary information can come from books that are written about the locality and its culture. Some of the information should come directly from natives of that foreign locality. If possible, a business education researcher should talk with several natives of the foreign locality after he or she has completed some background reading; then the business education researcher is better prepared to ask intelligent questions that elicit the specific types of information most useful at that time. Ideally, the business education researcher has also had recent travel experiences in the foreign locality where the research activity might be undertaken so that he or she is aware of current conditions that might impact the success of the research activity.

Even after the business education researcher has a thorough understanding of the foreign locality and has determined that it offers a suitable research opportunity, he or she should continue to refine his or her understanding of that locality and its culture. It is almost impossible to know too much about the foreign cultural environment in which a research activity takes place and to function too extensively on that knowledge. Not to know enough about a foreign cultural environment is to risk not only selection of an inappropriate research activity but also misinterpretation of its outcomes, to see the situation only through the eyes of an American when another perspective is more relevant.

A business education researcher who engages in foreign-based research must also be linguistically fluent. He or she must use the language of the foreign locality with a high degree of accuracy. Language proficiency in the American version of the English language will not be sufficient in most foreign localities, including, for instance, the U.K. Perhaps George Bernard Shaw summed up the situation best when he observed that Britain and America are two nations separated by a common language (Terpstra & David, 1985). Since natives of both countries use the English language in their own peculiar ways, the language is in actuality not shared to the degree that some assume.

For example, while the abbreviation M.D. listed after a name commonly represents medical doctor in the U.S.A., it commonly represents managing director in the U.K. From the American perspective addressing the individual as "Doctor" would be very appropriate for the business education researcher, but from the British perspective addressing the individual as "Doctor" would be very inappropriate unless the listing also includes an abbreviation for a doctoral degree. The misinterpretation of the common abbreviation M.D. could easily result in an embarrassing situation for a U.K.-based American business education researcher, one that breaches the rules of British etiquette and

that demonstrates that the American is not so linguistically fluent in the British cultural environment as he or she should be.

A business education researcher working in a foreign locality must attain near-native cultural and linguistic fluency. He or she must consistently respond in a manner characteristic of a prudent native, sensitive to the nuances of the situation and of the culture. He or she must also readily understand and use the written and oral language typical of well-educated natives of the foreign locality. The adage "When in Rome, do as the Romans do" provides pertinent guidance for the would-be foreign-based business education researcher.

Investigate the Attitudes Toward Access to Information in the Foreign Locality

Before making a commitment to conduct research in a foreign locality, a business education researcher should know the prevailing attitudes toward access to information in the foreign locality. Only then can he or she make an intelligent assessment of the likelihood that the research activity will yield sufficient information with substantial value to justify the costs associated with collecting it.

The need of Americans to know coupled with their relatively easy access to most types of relevant information is unparalleled. Having grown up in an open culture with relatively few limits on access to information, many Americans have difficulty accepting the fact that similar access to information is not available in most foreign localities. In fact, attitudes toward and prohibitions against access to information sometimes make it difficult or impossible for the American business education researcher to conduct the type of foreign-based research activity that he or she would like to conduct.

For example, in the U.K. the local culture places a very high value on privacy, in part because of the island-fortress mentality that developed by being isolated from the European continent and because of a large population living on a small land mass. Over time ingrained attitudes averse to knowing about things that did not personally impact them developed in the British people. In this type of cultural environment where privacy for oneself and privacy for others are of paramount importance, there is little need to know about others and many barriers exist to finding out about others.

Because more than a casual interest in others is perceived by the British people as an invasion of privacy, they typically are not eager to share much information with others, including foreigners. For example, typical research studies of British businesspersons achieve survey instrument completion rates of about 20 percent after several follow-up activities have been completed (*Management Challenges for the 1990s*, 1989). While American-based research methodology books suggest that this low rate is unsatisfactory, the fact of the matter is that cultural inhibitions in the U.K. regarding access to information make it nearly impossible to get completion rates that would satisfy an American research methodology expert.

Although the privacy factor is apt to be the most important factor causing low completion rates on surveys involving members of the British business community, other factors such as the revelation of potentially embarrassing information may negatively impact completion rates. The probing of such sensitive matters as training and development practices as well as possible comparisons with domestic and foreign competitors may further inhibit respondents from the British business community (M. P. Broussine, personal communication, January 16, 1990).

All of this does not mean that a business education researcher must avoid conducting survey research in the British business community. Instead it means that if in the best professional judgment of a business education researcher the survey method is the most appropriate one, then he or she must be willing to accept the resulting modest completion rate, to document that the gathered data are the best that can be obtained given the cultural and other constraints, to acknowledge the limitations in the gathered data, and to interpret the data conservatively.

In cases where the foreign-based business education researcher knows the size of the population and expects a low response rate, he or she can adjust the size of the sample to get the desired number of returns for a particular error limit. The business education researcher should also provide evidence that reduces concern for respondent and nonrespondent bias if the response rate is inadequate (Wunsch, 1986).

In the U.K. a business education researcher will quickly discover that he or she can not readily obtain the wealth of specific information, especially of a financial nature, that he or she has come to expect for and from major businesses in the U.S.A. The reasons are simple: (1) Public access to company-related information is not mandated by governmental regulation and law in the U.K. to the extent that it is mandated in the U.S.A., and (2) British companies and their representatives are very hesitant to disclose private or privileged information to any outsider for any reason, including a legitimate business education researcher with valid reasons for having access to that information. In personal interview situations representatives of both the British business and business education communities tend to provide general, non-specific information, which is not elucidating. They typically respond rather cautiously, even avoiding frank comments on topics where concerns or problems are well known. Thus, obtaining sufficient detailed information about or from the British business and

business education communities and their representatives can test the patience and persistence of an American business education researcher.

A prudent business education researcher will investigate local attitudes toward access to information before he or she determines if it is feasible to conduct a research activity in a foreign cultural environment. If a business education researcher does not consider attitudes toward access to information, then his or her research activity may yield a modest amount of useful information and disappointing results overall.

Understand the Business Community in the Foreign Locality

The business education researcher must understand the business community in the foreign locality since it will directly or indirectly have a bearing on the research activity. He or she needs to find out how that business community is similar to and different from the business community in the U.S.A. and assess how those similarities and differences will influence the research activity. A personal example illustrates this point.

I realized before I conducted a survey of the international business correspondence practices of the 100 largest British companies that I would have to approach the business community very carefully. Since the British business community is preoccupied with survival in challenging economic times, I knew that completing the survey questionnaires would be low priority for the targeted companies. In addition, I knew that the potential British respondents would be very skeptical of a request from an unknown outsider--a foreigner--for private, potentially sensitive, and possibly embarrassing information of perhaps some value to both domestic and foreign competitors. Thus, I had to persuade them to provide the requested information. Further, I had to counter as many of their concerns as possible in ways that would be acceptable in their culture.

To establish my personal credibility and that of the accompanying survey questionnaires, I sent the cover letters with my official designation as Visiting Fellow on the stationery of the prestigious educational institution with which I was affiliated and enclosed its business-reply envelopes for returning the completed questionnaires. Doing this allowed me to piggyback myself and the research project on the outstanding reputation of the business school before a status-conscious audience.

Since the British business community operates primarily on the basis of downward communication and is very sensitive to the wishes of superiors, I addressed the cover letters to the managing directors of the targeted companies, the chief executive officers, and politely requested that they forward the accompanying questionnaires to their respective most-knowledgeable employees for completion. Doing this allowed me to piggyback not only on the broad, global orientations of the managing directors but also on their power from above to encourage the designated individuals to respond. If the nonrespondents received the follow-up communications and replacement questionnaires via their respective managing directors, then it would be obvious to both that the nonrespondents had not fulfilled the wishes of their respective managing directors.

To counter objections from the British business community to complete the questionnaires, I emphasized the importance of and value to the company from providing the requested information, the strict confidentiality of the individual company responses, the availability of a summary of the research study findings to participating companies, and the small amount of time that would be necessary to complete the questionnaires.

To make the completion of the questionnaires a palatable task, I designed the questionnaires for quick, efficient completion and carefully constructed them with such features as British wordings, spellings, grammatical constructions, punctuation, and format. To increase further the likelihood of questionnaire completion, I conducted the initial mailing and two follow-ups during a time period that was free of the disruptions to work that would be caused by major British holidays, when business employees often take additional time off from work. The timing of the follow-ups was also influenced by how many days were required for the research materials to travel by post from me to the managing directors and from the respondents to me.

Thus, I extensively used my detailed knowledge of the British business community to help me make the best possible research-related decisions at many points in the research activity. These decisions resulted in the achievement of a higher than typical response rate from members of the British business community.

Understand the Business Education Community in the Foreign Locality

The business education researcher must also understand the business education community in the foreign locality since it will directly or indirectly have a bearing on the research activity. The business education researcher should try to discover the ways in which that community is like and unlike the business education community in the U.S.A. He or she will then need to consider how these factors impact the research activity.

For example, a business education researcher who wishes to conduct an experiment to determine the most effective method of teaching the design and technology component of the newly implemented National Curriculum in the state-maintained secondary schools in the U.K. needs to know

that both attitudes toward learning and actual student learning may be influenced by the perceptions that the British people have toward education for business. Through no fault of its own, education for business is handicapped by its relatively low status in a British society where everything has its assigned place. The historic disdain that the British people have for both practical and vocational education plus their class-system hierarchy that gives most business-related occupations low to moderate status make it difficult for education for business to be highly valued. Nevertheless, the British people are beginning to realize that the economic security of their country rests on the foundation of a business community that is competitive at home and abroad. Increasingly the British people are acknowledging that their historic preference for gifted amateurs rather than highly educated and trained businesspersons is at the root of the problem. Slowly but surely they are realizing that there must be a substantial number of highly educated and trained British businesspersons who can compete against the highly educated and trained professionals from other countries (Scott, in press).

Given knowledge of the status of education for business, a U.K.-based business education researcher should ensure that the students in the control and experimental groups have similar distributions of attitudes toward education for business. In some instances this could be accomplished by randomly assigning students to the control and experimental groups. If this does not happen, then the results of the experiment may be biased by the differences in attitudes toward education for business that are manifest in actual student learning in the various studied groups. If the business education researcher must use intact classes that do not have similar distributions of attitudes toward education for business, then he or she should use statistical manipulation to adjust the gathered data so that the experiment yields an internally valid outcome. Thus, the business education researcher's detailed knowledge about the business education community and its place in society may be a critical factor that influences the selection of an appropriate research design.

Consider the Research-Related Resource Constraints in the Foreign Locality

A wise business education researcher will consider the research-related resource constraints in the foreign locality before making a commitment to engage in overseas research. These resource constraints include a wide variety of factors. Among them are such factors as manpower, working space, supply and equipment, time, and cost constraints.

An American business education researcher may think that he or she will have no manpower-related constraints while researching overseas since he or she will do all the work. That assumption may not be realistic for several reasons. It may not be as easy as the business education researcher initially thinks to obtain the necessary documents and clearances to stay in a foreign locality for as long as may be required to complete a research activity, especially if it involves empirical research. According to the Bureau of Consular Affairs, Department of State, having only a tourist classification for immigration purposes typically gives a business education researcher a legal right to reside in a foreign locality for from 30 days to 90 days (Nyda Novidvorsky, personal communication, September 10, 1990). Consequently, a business education researcher might want to consider an affiliation with a foreign educational institution or an approved exchange program that may entitle him or her to a longer period of foreign residency.

After the business education researcher arrives in a foreign locality, he or she may realize that the research activity can not be completed alone. Since work is not necessarily accomplished as quickly or as efficiently in a foreign locality as it is in the U.S.A., the business education researcher may find that he or she has seriously underestimated the manpower requirements for the research activity. The business education researcher may then be forced to scale back the research activity or to seek assistance from someone who resides in the foreign locality. It is possible that the business education researcher may not be able to find anyone in the foreign locality who has the ideal research-related background and skills and, out of necessity, may have to use the services of someone who is either marginally qualified or inadequately qualified, which has the potential to jeopardize the success of the research activity.

In order to conduct any type of research-related activity, working space is required. Unless the overseas business education researcher exclusively uses the facilities of others as he or she might do if engaging exclusively in library-based research or in some types of interview-based research, he or she will need to arrange for a working space somewhere. Where will that working space be? Is it realistic for the business education researcher to think that the research activity can be undertaken in his or her residence? Since living quarters abroad often are small and cramped at best, working at home may not be feasible. Where, then, can the overseas business education researcher headquarter the research activity? Since working space is frequently one of the concomitants of an overseas affiliation or exchange arrangement, a business education researcher should explore these options.

Since all research activities consume supplies of one type or another and sometimes require equipment, too, a would-be overseas business education researcher needs to consider this factor as well. Are the essential and desirable supplies and equipment available in the foreign locality, or must they be imported from the U.S.A. or elsewhere? Will the available supplies and equipment really meet the essential

and desirable requirements of the American business education researcher? For example, while researching in the U.K., I had to prepare on very short notice an important multiple-page document and six copies that absolutely had to be on 8 1/2- x 11-inch paper. On the surface it appeared to be an easy task, but it was not. Virtually all British paper and paper-processing equipment conform to metric specifications. The available A4 paper was both too narrow in width and too long in length, and the available word processing printers and photocopiers were not designed to accommodate non-metric-sized stationery even if it were available. In some but not necessarily all cases, a business education researcher working overseas may find that part or all of his or her research-related supply and equipment needs can be met through an affiliation with an educational institution in the foreign locality.

Time may be a constraint facing an overseas business education researcher in several senses. For a variety of reasons, including the time required for cultural assimilation and for developing familiarity with such local resources as libraries, which are not organized by the same cataloging systems as they are in the U.S.A., the business education researcher overseas will not be able to accomplish as much as he or she typically does at home in the U.S.A. The overseas cultural environment may have a different perspective of time and may not view it in the American manner as a scarce commodity that must be carefully allocated. Efficiency in the American sense of the word may be uncommon or unknown. Those who assist the business education researcher in implementing his or her research activity may function on the basis of a different time-orientation than the business education researcher desires or requires. Natives of the locality may not desire to take the time or may not have the time to participate in a research activity even if it is a worthwhile one.

Cost constraints usually impact the overseas business education researcher since his or her research-related funds are limited. In order to conduct research overseas, the business education researcher must bear the substantial costs associated with going to and returning from the overseas location or locations. He or she must also bear the costs associated with living overseas. Costs for such absolute necessities as shelter and food may be considerably higher in a foreign locality but may provide a substantially lower standard of living than the American business education researcher takes for granted. Similarly, those things that the business education researcher must have in the foreign locality to conduct the research activity may cost more but may be of lower standard than they would be in the U.S.A.

A prudent business education researcher will carefully weigh the various types of research-related resource constraints that impact his or her ability to conduct a foreign-based research activity. Among these are manpower, working space, supply and equipment, time, and cost constraints.

Consider the Effects of Conducting Overseas Research on the Business Education Researcher

A business education researcher must carefully consider the various impacts that conducting an overseas research activity will have on himself or herself. Prior to, during, and after the overseas research activity, the business education researcher's personal life will be disrupted significantly. Can the would-be overseas business education researcher cope with the continuing upheaval and related stress in his or her personal life?

It is unrealistic for the would-be overseas business education researcher to think that all he or she must do is to lock the front door and to depart for the foreign locality. If the business education researcher will be overseas for any significant period of time--most will need to be--then he or she must wind down his or her professional and personal business affairs; make arrangements for someone to act on his or her behalf while away, perhaps through a power of attorney; update his or her will; update his or her insurance coverage; dispose of his or her housing; throw away, consolidate, and store his or her personal possessions; say goodbye to his or her friends and family; and the like. Then suddenly reality sets in; the would-be overseas business education researcher experiences an uncomfortable feeling, a sense of detachment, a loss of security. He or she realizes that the only things now under his or her direct personal control are the few possessions that will be taken overseas and himself or herself, which is liberating but frightening.

The business education researcher quickly learns that adjusting to life in a foreign locality is filled with many highs and lows. At first the enthusiastic business education researcher finds nearly everything about his or her new overseas life to be wonderful and appealing. Soon reality begins to set in, and the business education researcher finds that many aspects of overseas life are strange and less appealing. As more of the negative side of life overseas is experienced firsthand, the business education researcher finds overseas life difficult and unappealing. He or she tries to reject the foreign culture and to reintegrate with his or her native culture, which is virtually impossible to do overseas. If the business education researcher endures long enough in the foreign locality, he or she may learn to accept life in that locality as it is, different from life back home in the U.S.A. but nevertheless legitimate and interesting. Given enough time in the foreign locality, a business education researcher may learn to value the similarities and differences between that culture and his or her native culture and to function independently in that foreign culture. However, business education researchers with relatively inflexible perspectives on life as well as business education researchers who

remain overseas for only a few months may never reach the point of accepting life as it is in the foreign locality and of functioning independently in the foreign locality (Harris & Moran, 1979).

After the overseas business education researcher completes the research activity and returns to the U.S.A., he or she experiences further culture shock, the intensity of which is related to the length of time spent overseas and to the degree of isolation from the culture of the U.S.A. Life in the U.S.A. is not exactly as the business education researcher remembered it was at the time of his or her departure for the foreign locality. During the time spent overseas, countless changes, many of which are unknown and inconceivable to the business education researcher, have occurred. Initially the returning business education researcher may feel like a "fish out of water," almost as if he or she were a foreigner in his or her own native land. However, slowly but surely the returning business education researcher feels more secure in his or her native culture and is able to fill in the major gaps in his or her understandings; in time he or she is reassimilated into the culture of the U.S.A. (Harris & Moran, 1979).

It should be pointed out that the business education researcher who successfully functions overseas for a period of time may never be the person he or she was before that experience. The reason is simple: The overseas business education researcher has grown and matured in response to the multitudinous challenges abroad; he or she is a changed person in countless ways. That business education researcher is now a cosmopolitan, a transnational, a citizen of the world community who is able to understand, to accept, and to live life successfully in a variety of lifestyles that are sensitive to the local culture (Harris & Moran, 1979).

Summary and Conclusions

The decision to conduct a research activity overseas is not an easy one; it is influenced by many complex factors. Conducting a worthwhile research activity in an exemplary manner is challenging in the U.S.A., and it is doubly challenging in a foreign locality. Nevertheless, a business education researcher can make an informed, intelligent decision regarding the feasibility of conducting an overseas research activity if he or she will consider the ramifications of such factors as the cultural environment of the foreign locality, his or her cultural and linguistic fluency in the foreign locality, the attitudes toward access to information in the foreign locality, the business community in the foreign locality, the business education community in the foreign locality, the resource-related constraints in the foreign locality, and the effects of conducting overseas research on the business education researcher. Conducting a research activity overseas is not for all business educators; but for those business educators who rise to the challenges and succeed, the foreign-based research experience is richly rewarding.

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PART II
RESEARCH TRAINING

Applying Research to the Classroom
Instructional Strategies: An Applied Research Series

F. Stanford Wayne
Southwest Missouri State University

Research should provide support for professional educational experiences in the classroom in order that teachers can effectively plan and make teaching decisions. Research often helps to substantiate common sense teaching/learning methodologies teachers use in the classroom on a daily basis as they relate to such areas of concern as course rigor, collegiality, discipline, classroom climate, assessment, and quantity and quality of homework. On the other hand, research often helps disprove the effectiveness of methodologies that teachers use in the classroom on a daily basis based on what conventional wisdom dictates is correct.

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DACUM: A Competency-Based Curriculum Tool

Robert E. Norton
Center on Education and Training for Employment

In state after state, DACUM (Developing A Curriculum) is proving a very effective and very efficient process for conducting an occupational analysis of any job in two days or less. The DACUM analysis produces a rigorously identified list of the tasks (competencies) that form a basis for developing high quality education and training programs. Additionally, it also provides for substantive input from industry in a way that builds strong and lasting linkages.

At the Center on Education and Training for Employment (CETE) the DACUM job analysis workshop and the recommended subsequent DACUM task analysis workshop are integral parts of an overall Systematic Curriculum and Instructional Development (SCID) model. The model consists of 22 components that comprise the five phases of development: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation.

The DACUM job analysis workshop operates on three basic and fundamental premises: (1) expert workers are better able to describe/define their jobs than anyone else, (2) any job can be effectively described in terms of the tasks that successful workers in that occupation perform, and (3) workers need certain, specific attitudes and knowledge in order to perform each task correctly.

How does this process work? A carefully chosen group of about 10-12 experts from the occupational area form a DACUM committee. Committee members are recruited directly from business, industry, or the professions. The committee works under the guidance of a trained facilitator for two days to develop a DACUM chart, which is a detailed and graphic portrayal of the tasks involved in the occupation being studied.

Guided by the facilitator, the DACUM committee identifies general areas of job responsibility called duties, pinpoints specific tasks performed in connection with each duty, reviews and refines the task and duty statements, sequences them, and identifies entry-level tasks. Modified and structured small-group brainstorming techniques are used to obtain the collective expertise and consensus of the committee. High-quality task and duty statements usually result from this interaction. The DACUM analysis also results in (1) lists of tools, equipment, supplies, and materials pertinent to the occupation; (2) traits and attitudes important to workers in that occupation; and (3) general knowledge and skill areas that are prerequisites to job performance. Since March of 1990 we have also begun to routinely identify terminology and acronyms that are unique to the occupation being analyzed.

The DACUM job analysis process is particularly useful when a new secondary or post-secondary occupational program is to be offered. When conducted at the user's institution, the process results in two benefits: the institution obtains a solid, locally relevant job analysis as a basis for curriculum development and receives immediate, strong support for the new program from the business and industrial community. This support results from the substantive involvement of industry people, who tell their supervisors about the relevant programs that the institution is implementing. Often several, if no all, DACUM panel members later serve on an advisory committee for the new program. Institutions that have used the DACUM process often receive donations of equipment and supplies from local employers. Some facilitators even report active recruitment of students for the new program by the panel members.

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A Doctoral Research Model

Michael Bronner
New York University

Pursuing a doctorate is a unique experience unlike any you've ever had before (or likely to have again!) Undertaking doctoral study demands a special commitment above and beyond most of your previous experiences and brings into play resources and talents one rarely uses. In short, 'once is enough--but if you do it right once is all you'll ever need!'

This document may prove helpful as you wend your way through the doctoral maze, and it is designed to provide an overview of some of the major hurdles you'll face, especially during the development of what is generally the most difficult hurdle--the research project.

The illustration provided at the end of this article describes the nature of a major (read doctoral) research project traditionally used in the survey/empirical realm. It is not necessarily reflective of ethnographic or case study research; however, it may be useful within these related areas. In fact, experimental and historical research paradigms may also find this model useful.

Use the following to guide your review of the model:

1. A strong theoretical framework or conceptual rationale is usually the staring point for most doctoral research. A point here is that the stronger the theory base, the better. A conceptual rationale, on the other hand, needs more support to buttress the 'first domino' theory. McGregor's Theory-X and Theory-Y vs 'consumer behavior' is one such illustration of a theory and a conceptional rationale.

2. The problem statement should flow from the theory framework and be developed in an inverse pyramid manner, ending with the specific purpose of the study. In the problem statement--generally 3-6 pages in length--the context of the problem is discussed along with the significance of the study with the introduction of the theory base or conceptual rationale supporting the study. A subhead such as 'Introduction and Background (or Context) of the Problem' may prove helpful. The inverse pyramid moves the reader from the global to the specific and 'sets the scene' for the study. The Purpose statement should then reflect the precise title you want on the cover of your dissertation. The Problem Statement and the Purpose are not the same.

3. While some dissertations contain 'sub-problems,' it is my contention that 'research questions' are easier to deal with. Sub-problems infer that each such 'sub-problem' has an identity all of its own with specific methods involved for its solution. Since this is generally not the case, research questions allow for a simpler addressing of the issues AND provide the researcher with a beginning for hypothesis development and testing. As such, the latter is to be desired in most cases.

4. Hypotheses, if used, can be inserted at this point. I personally prefer the null form IF supported by the literature. You place yourself in a precarious position if you hypothesize a directional bent to your results and it turns out 180-degrees the other way! Also keep in mind that it is YOUR responsibility to establish the level of significance desired. While .05 and .01 are traditional, studies using .10 are also acceptable where justified, as with special populations.

   Hypotheses, of course, may also be derived as a result of the related literature supporting their development. As such, they may appear at the end of this section rather than following the research questions.

5. Limitations and Delimitations--where useful--should be included to provide parameters to confine the study. Limitations are those elements outside of the researcher's control and delimitations are constraints placed on the study by the researcher.

6. Definitions often generate some confusion. Generally speaking, only definitions absolutely necessary to the early reading should be provided. Methodological definitions should be included in the method section and not take up space in the early portion of the proposal. Definitions should also appear in two dimensions--the first defined academically from the literature; the second, defined operationally--' . . .as used in this study. . . .' Obviously, terms such as 'achievement,' 'success,' and the like should be defined early on.

7. The Related Literature section generally follows beginning with a detailed review of the supporting theoretical framework. The literature related to the study--dissertations and solid research studies--is then discussed with one segment usually dealing with those studies within the subject area under investigation (accounting, management, marketing, office systems); one segment dealing with the population and like investigations (methods, of instruction, survey of information proc-

essing professionals, community college students); and one segment dealing with the methodology (case study, survey, experimental, historical). This section can be subsumed under the former if the literature suggests it.

Remember that this section is call Related Literature so make sure to follow the R-C-R theme: **review** the literature (summarize it)– **critique** the literature (praise and/or criticize it)–and **relate** the literature to your study (how it 'fits' or 'relates' to your study). If you can't do this, then the 'literature' you've selected may not be appropriate. Finally, provide a summary to this section!

8. The Method section (frequently termed 'methodology') establishes 'how' you will go about your research. Here is where you determine your research design, detail your population and sample, establish acceptable response rate(s), provide details for your jury or panel of experts, and indicate the validation of your data-gathering instrument(s), among other details. In short, ask yourself the following questions:

   a. Data needed? The 'what'
   b. Data sources? The 'where'
   c. Data acquisition? The 'how'
   d. Data treatment? The 'what then'
   e. Data analysis? The 'what does it all mean'

You should be able to identify all of the foregoing within your proposal; if not, keep working!

Pilot testing, field trials, and feasibility study results can also be placed in this section.

If you are pressed for space (NYU places a maximum 40-page limit exclusive of bibliography and appendices), place some of the validation details and sample instruments into the appendix.

This concludes the proposal segment of a typical doctoral study; however, keep in mind that the proposal can be likened to a blueprint for building a house. Given an adequate blueprint, a contractor can build the house according to the plans. Your proposal is the blueprint and it should be written so that any researcher with similar qualifications can carry out the study. If this cannot be accomplished, something's amiss!

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The proposal generally does not have 'chapters' per se; however, the foregoing sections become the basis for the first three chapters of your dissertation, expanded greatly, of course, since you now have no page limitations imposed. Problem statement elements may be clarified and expanded, research questions possibly modified, hypotheses refined, new literature added, method clarification introduced, and both bibliography and appendices updated. Remember your proposal is in 'future' tense--a proposed study--and the final product is an 'historical' document--one completed!

Let's now look at the final chapters of the study:

9. Findings and Discussion. This chapter--sometimes divided into two separate chapters--treats what you've found and what it means. Tables, illustrations, and figures that help the reader understand the results are usually provided here. Be careful not to 'overfill' your chapter by inserting all forms of minute detail, which tend to obscure the important findings. Also remember that an illustration or table should be able to stand alone; however, supporting narrative IS required to supplement the graphics used. Either at the end of this chapter or included in the next, you MUST make sure to relate what your findings mean to your theory base from whence your study sprung. While the 'conclusions' section of your next chapter is a logical place for this, some dissertations provide a bridge section at the end of this chapter to serve as a transition to the final chapter.

10. Summary, Conclusions, and Recommendations. This chapter provides the summary of the entire research project (not just the summary of the findings) as well as the conclusions you've derived from the research, the findings, and your discussion. What do they all add up to? And, more importantly, how do they 'fit' with the theoretical foundation you began with? How do your conclusions modify, expand, negate, substantiate, or affect your theory base? This is why your initial stage is so very important, as your research can be seen as a circle and NOT a tunnel.

Your recommendations should be in two parts: One part dealing with your recommendations for the profession or field and one part dealing with your recommendations for future research. In the first part, what should professionals DO with your results? What can they learn from your efforts and how can what you've found make a difference to them?

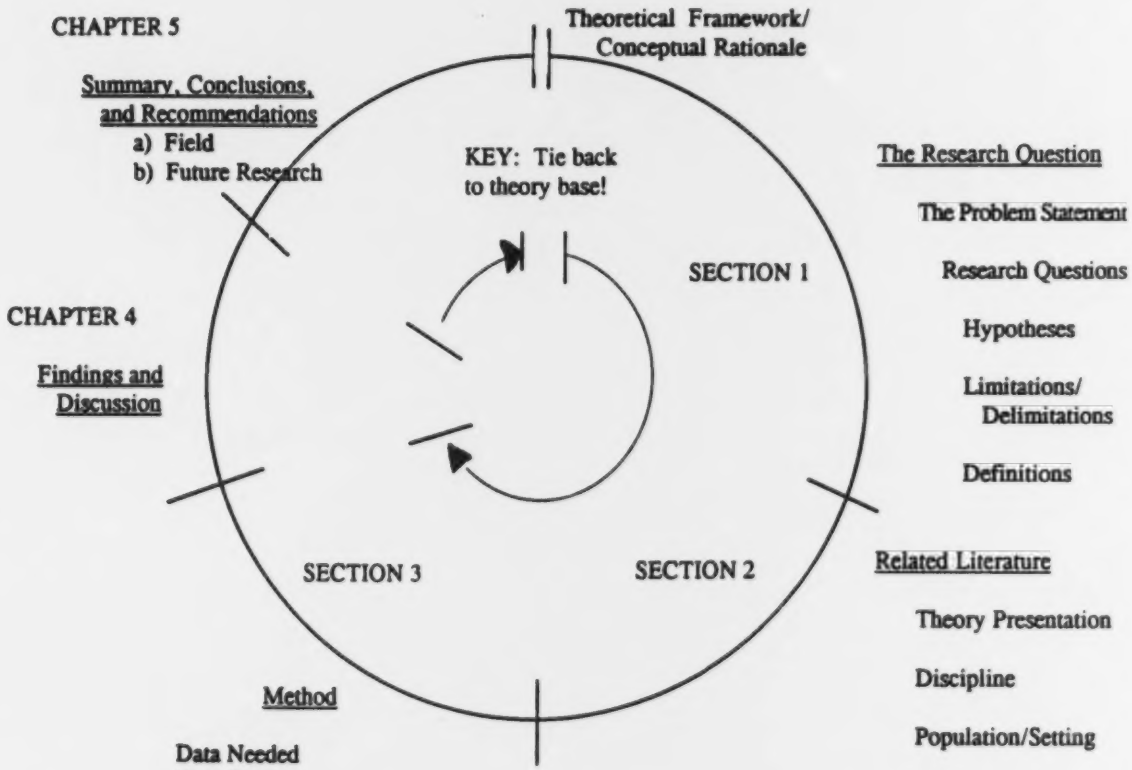
In the second part, what needs to be done next on the basis of what you've found? Good research should always beget more research! Can you recommend an application of your findings to another population and discipline, or to another time frame? This section is where the 'smart' researchers go to look for their next research activity--after all, you've laid the groundwork for them!

The entire project, of course, is written in solid scholarly style, with accurate and effective English, and with mechanical and technical precision. While the style guide I

recommend is the *Publication Manual of the American Psychological Association*, 3/e, almost any guide is acceptable as long as you're consistent! Of course, your own institution may have preferences of which you should be aware. Obviously, word processing skills are to be greatly desired!

Please do not take these guides offered as etched in stone for everyone. Your own situation and setting will probably differ, and other requirements will take precedence depending on your institutional environment. However, these suggestions and ideas are offered in the hopes that they will prove useful to you as you wend your way through the doctoral research maze. Good luck!

A Research Model



Ph.D.

Strong theory base
Wide generalizability
Statistics are inferential

Ed. D.

Adequate conceptual rationale
Local generalizability
Statistics are descriptive

The ERIC Database: Information for the Asking!

Judith O. Wagner
ERIC Clearinghouse on Adult, Career, and Vocational Education

Abstract

ERIC, the Educational Resources Information Center, is a national information system sponsored by the Office of Educational Research and Improvement, U.S. Department of Education. The goal of ERIC is to identify, select, process, and disseminate information in all areas of education. ERIC has a network of 16 clearinghouses, each serving a specialized field of education. The ERIC system offers a number of information services including monthly abstract journals, microfiche and paper copies of materials, review and synthesis papers, and computer searches.

Description

ERIC, The Educational Resources Information Center, is the world's largest education database and an important source of information and materials of interest to the vocational and technical education community. Since 1966, ERIC has been collecting and making available all types of materials in all areas of education.

ERIC is sponsored by the Office of Educational Research and Improvement, U.S. Department of Education. It consists of 16 subject-oriented clearinghouses, 3 adjunct clearinghouses, and support services. Of particular interest to vocational and technical educators is the ERIC Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) located at The Center on Education and Training for Employment at The Ohio State University. ERIC identifies, solicits, abstracts and indexes, and makes available "fugituve" materials. Generally speaking, fugitive materials are those that have been developed with public funds by an agency for its own use. This includes curriculum developed by a school district, reports of research done by an R&D center, conference proceedings, descriptions of classroom practices, program evaluations, conference presentations, and "how we made it work" papers.

User Services

After the materials have been accepted for inclusion in the database (see *Submitting Documents* below), it is important that those working in the field can access them. ERIC has an extensive user services program that makes the process an easy one. Services at ERIC/ACVE include publications, question answering, computer searchers, outreach, and referrals.

User Services Products

Better known as no-cost resources, these products include ERIC Digests, Practice Application Briefs, Trends and Issues Alerts, Employment and Training Notes, and resource lists. Some recent titles of interest are: *Vocational Education Performance Standards*, *Evaluation Strategies for Vocational Program Redesign*, and *Workplace Literacy*.

Question Answering and Referral

The user services coordinator at the ERIC Clearinghouse on Adult, Career, and Vocational Education will provide materials and information to suit your needs. If appropriate, a computer search of the ERIC database might be run. It is also possible that the clearinghouse would have some ready-made materials that would answer your request. If the information you need is not available from ERIC/ACVE, you will be referred to the appropriate source.

Publications

With the help of our advisory committee, our ERIC Partners, and our other constituents, we select topics for major publications. We contract with an expert in that area to write the paper which we then edit and publish. Some recent titles in the series are: *Learning and Reality: Reflections on Trends in Adult Learning* by Robert Fellenz and Gary Conti (IN336); *School to Work Transition for At-Risk Youth* by Sheila H. Feichtner (IN339); and *The Role of Vocational Education in the Development of Students' Academic Skills* by Sandra Pritz (IN340).

How Can I Use ERIC?

Access to ERIC is provided at most university libraries, state departments of education, state libraries, and teacher centers. It is even available to you through your home computer! Typically you can do your own search, with or without assistance, or you can have someone do it for you. ERIC is available in print (Resources in Education (RIE) and Current Index to Journals in Education (CIJE)), through online searching, and on CD-ROM. This article will deal primarily with online and CD-ROM access.

If you are a novice, it would be best to find someone in the area who provides ERIC services and have them conduct a search for you. Call the ERIC Clearinghouse on Adult, Career, and Vocational Education or your local public or university library for the location of a search service in your area.

Each agency will have its own procedures regarding searching. Two variables are cost and turn-around time. Some agencies are funded to perform searches at no cost for their constituencies. For example, universities and state libraries might do free or low cost searches for faculty, staff, and student. Other agencies operate a fee-based search service and will charge accordingly.

If you have the time and expertise, you can access ERIC and other databases through your home or office computer. Two of the database vendors, DIALOG and BRS, offer low-cost searching opportunities. In addition to your computer, you will need a modem and the corresponding telecommunications software and a contract with one of the vendors. For a very reasonable charge, you can then access the databases "after hours," usually between 6 pm and 7 am. If you do a lot of searching and are comfortable with the computer, this method has many advantages.

ERIC and CD-ROM

In addition to being available online, ERIC can also be accessed through CD-ROM. ERIC on CD-ROM is presently available in some university libraries and research centers. The system is very "user friendly" and continuous directions make the process painless.

How Do I Prepare for a Search and What Will I Get?

If you are having an intermediary do your searching, usually you need to do nothing more than have a clear idea of what you are looking for. The searcher will question you to clarify your topic and determine any limitations on it. Some searchers will request that you note some key works to help them develop the search strategy. Others will just ask what you are looking for and develop the strategy from their own notes. Either way, knowing exactly what you want is the best preparation for a search.

The result of the search will be an annotated bibliography of journal and document literature on your topic. After you have received and screened your search, you can readily obtain the full text of most of the materials. ERIC is a document delivery database. Microfiche or paper copies of materials are available from many ERIC service providers or from the ERIC Document Reproduction Service. Journal articles can be found in many libraries or reprints can be ordered from the UMI Article Clearinghouse.

What Will I Find in ERIC?"

The ERIC database has information on every topic related to education in the broadest sense. As indicated above, you will find curriculum, research reports, state-of-the-art papers, literature reviews, bibliographies, practice applications, and program evaluations What you will not find in ERIC are nonprint materials, many dissertations, and comprehensive statistics.

Submitting Documents to ERIC

In order to maintain the ERIC database, it is necessary for those in the field to provide us with materials! ERIC is education's database, and education has a responsibility to see that it is as current as possible. Please submit your materials to ERIC/ACVE for possible entry into the database. Again, more complete information is available.

To receive general information about the ERIC system and the ERIC Clearinghouse on Adult, Career, and Vocational Education, please write to User Services Coordinator, ERIC/ACVE, 1900 Kenny Road, Columbus, OH 43210-1090. You will receive a packet that includes the ERIC/ACVE information brochure, a list of major publications, the No-Cost Resources list, and a brochure on submitting documents to ERIC.

Research: A Process for Everyone

Larry E. Miller
The Ohio State University

Abstract

The conduct of research to contribute to knowledge in a profession is the responsibility of each member of the group. The conduct of research is not as difficult as some perceive it, particularly if one examines the purposes of the investigation and controls the potential errors. Research should be made to be "fun" and an enthusiasm passed on to the next generation of scholars.

Introduction

How often have you attended a session where the presenter was from the field of agriculture? Not often, I bet! The heritage of research and statistics would certainly indicate that I am not out of place because much of modern research design and statistics have their roots in agriculture.

Putting that aside, please be assured that I am accustomed to attempting to mold the minds of persons who are learning about research from a varied number of disciplines. I teach a graduate level course in my department; Agricultural Education 885, Research Methods; which has grown from an early beginning of trying to make sure our graduate students were competent, to currently being a service course at the graduate level for the whole of Ohio State University. I have taught over 3000 graduate students from over 68 different departments and academic areas during the past eleven years. The students are about 60 % doctoral and 40 % Masters. Several of the students are out of the College of Education and Business and Office Education.

Therefore, do not feel out of place if you are not well versed in research. I will assume you know nothing about it. For those of you who have had some experience, you are welcome, too. But remember: "If you are green, then you are growing; but if you are ripe, then you are ready to rot." Those of us who have conducted some research need to be receptive to new ideas -- green -- just as those who begin with no knowledge. If we consider ourselves well versed, then we may be "ripe" and ready to "rot."

Further, to have someone from the agricultural field (excuse the pun) just highlights the title of this presentation: "Research: A Process for Everyone." All of us need research in some form.

Some of us work for universities or other agencies where it is a "publish or perish" environment, and, thus, we must conduct research which is publishable. Others of us need the results of research as we design new programs or make policy decisions, and we are consumers of research. We all need it, however.

Research is a process and a product. I want to talk today about both. We will not have the time to teach you all of the process, obviously. However, we can give you a template which will help you make sense out of research. The template is easy to understand in terms of the product of research.

The ultimate goal of research is the creation of new knowledge. The term you may have once used of doing a "research paper" for a course must now be, forever more, erased from your mind and usage. Those we will now call "term papers". Research, as a word, we will now reserve for those investigations whose purpose it is to gather new knowledge.

Most research studies, in and of themselves, do not develop "truth," develop another "Boyle's Law," or another Salk vaccine. More likely, they just add another brick to the wall of knowledge required to really add to knowledge in a field. Hamlin defines research as an "unusual and persistent effort to get our thinking straight." I believe this is a good way to think of research. We do one study to add just a bit to knowledge, perhaps. The next person plugs-away with another bit. But, little by little, we learn. It is more a process of "knowing" than to "know." The most frustrating problem for most neophyte researchers, like graduate students, is that they want to knock down that whole wall in one fell-swoop, and illuminate the whole "black hole of ignorance." Finding a cure for AIDS or cancer is not likely to be the result of one small study.

For example, many of the studies upon which Salk built his theory and did his thinking might have won Proxmire's "Golden Fleece Awards." Quite often the naive see much of research as being of "no real benefit to anyone," "conducted by some egghead in an ivory tower," or of "no real use to me." This may be particularly true of basic research, as compared with applied research. Many laypersons,

practitioners, and uninformed individuals perceive that all research should show immediate benefit. This, however, is just not going to be the case. It may help us along the process of "knowing," but it may not let us "know."

The researcher who spends a lifetime and huge amounts of money studying the eye color of mosquitoes might be perceived by many to be wasting his/her time and "just lots of money." However, when that eye color is linked with the anopheles mosquito, found to be sex linked genetically, and one can now identify male mosquitoes, sterilize them, and thus wipe out those "dudes," and eliminate malaria in the world; society would be pleased.

Research is a process we go through to discover new knowledge, discover general principles, and/or determine new relationships with the end sought to create a theory. By doing research, we want to be able to understand, predict or control outcomes. It involves formal, systematic and careful processes so that outcomes are valid and reliable. The purposes of research can be categorized into studies which attempt to:

1. Explore/Describe
2. Explain/Predict
3. Control

Please note that each of these purposes of research is important. You may be led to believe, by some, that experimental research,. that which controls, is the only "real" research. I am here to advocate a position that that is just not so. Again, all research moves us toward "knowing," and to do a study which surveys (explores/describes) may make just as important a contribution to knowing as does an experiment (control).

Much may also be made of the "hard" versus the "soft" (implying easy) sciences with the latter usually being the label for the social and behavioral sciences. From years of experience, let me tell you that if there is a hard science to conduct and produce valid results, then it is in the behavioral sciences. "Benchtop" researchers do not even know what "contaminating" variables are until they try to investigate discipline problems in the public schools. The point is: No matter what type of research you conduct, keep your head held high. What you do is probably just as important as what anyone else is doing.

Exploring and Describing

When we do research to become more familiar with phenomena, to gain new insights, to formulate more specific objectives, to portray accurately the incidence, distribution, and characteristics of a group or situation; our purpose is to explore/describe. We may wish to look at the association between these characteristics. Some questions might be: Should the AVA establish a PAC? What is the average age of teacher educators? What is the opinion of employers who hire your graduates?

Types of research which fall into this purpose include surveys, developmental studies (longitudinal and follow-up studies: studies which include data collected at several points in time), and case studies (including naturalistic inquiry, phenomenology, ethnography, qualitative research and triangulation: studies which attempt to obtain more depth of understanding). I do not propose to enter into the dialogue about the "paradigm war" of which makes the greater contribution to knowledge: quantitative or qualitative research.

Explaining and Predicting

Relational research, which attempts to explain and predict relationships among characteristics or variables, comprises this purpose. The research can be subdivided into correlational research or ex post facto research.

Correlational research is conducted when the objectives are to explain/predict the relationship between characteristics or variables on one group of subjects. For example, a research question might be: "What is the relationship between the income and the years of experience of business educators in Georgia? One group of business educators would be studied, data gathered on their income and years of experience and appropriate statistics used (correlations and regression) to see if years of experience explains or predicts the variability in income of the business educators.

Ex post facto research has the same purpose, but is conceptualized differently. The researcher observes some variability in a dependent variable and looks for other variables (independent variables) which might explain/predict it. One might start to "look" in the literature to see what others have found out about the phenomena (dependent variable). The literature indicates that about six (6) variables have been thought to relate. However, some others may also. Therefore, the researcher calls the 6 primary ones the Main Independent Variables, and, since the others must also be studied, labels the others the Rival Independent Variables. All of the Independent Variables and the dependent variable are studied (measured) and the relationship between them analyzed with the appropriate statistical tools (correlations and regression) to see if the independent help explain or predict the variability in the dependent variable.

For example, one may notice that a large number of business educators are resigning and leaving the profession (the dependent variable). Being concerned about the professional implications of this, the researcher examines what the literature shows might explain why professionally qualified people would opt to exit. The literature suggests that the main reasons appear to be (1) family obligations, (2) unsatisfactory working conditions, and (3) other per-

sonnel were substituted to perform the specific job function. These become the Main Independent Variables. Further reading and thinking also leads the researcher to believe that (1) job satisfaction, (2) professional advancement opportunities, and (3) continuing one's education are also good predictors (Rival Independent Variables). Thus, data are collected on all these variables and analyzed to determine the relationship between the independent and dependent variables.

Control

The types of research which attempt to control are experimental and quasi-experimental. The researcher attempts to control:

1. the independent variable -- the treatment, the cause, who gets which level of a treatment (often by randomization)

2. contaminating (confounding, intervening, moderating, or extraneous) variables -- those which would make the study invalid if not controlled, those which would be alternative explanations for the results.

3. the dependent variable -- obviously, one would want to have a certain effect: decrease heart rates, increase learning, improve efficiency. The experimental researcher hopes to cause this effect, hopes to be able to imply causality.

True or pure experimental research is different than quasi-experimental research but that discussion is beyond the scope of this presentation.

One can easily learn about #2, as the threats to the validity of a study (contaminating variables) have been classified by Campbell and Stanley (1966). Further, they describe the different ways to design a study and set up to independent variables (#1) to test for the effect upon the dependent (#3) variable(s). There are professors, like me, who would just love to "massage your mind" for awhile and teach you this content. These professors exist in lots of programs within lots of different colleges and universities. Select carefully, though, because the intent of a good professor is to clarify and not confuse. I believe too many people in research and statistics have an "ego" problem which leads them to want to take simple concepts and make them complex in order to impress you with their knowledge. BEWARE of persons who seem to fit this mold.

The bottom line is that everyone can learn about research and do it successfully. What may appear to be "a big fog" can really be compartmentalized and learned systematically so that it is not at all complex. It is logical! It is systematic! It is careful! It is formal! It is described in such detail that others can redo (replicate) it! It is possible for you to do it well or to read and understand it. You can cut away that fog. You can do research to help your profession. You can consume (read and understand) the research of others. You can learn how to get funding for that research from foundations and other agencies. You can be on the "cutting-edge" of the leadership in your profession because you read the "latest stuff" in the journals and do not wait for it to become common practice. You can be the leader.

Professional Implications

Let us talk just a few minutes about the professional implications of doing research. First of all, have you ever thought about "What is a profession?" A profession is characterized by requiring a relatively long period of specific training, having specialized knowledge and skill preserved in technical language, life membership, effective organization, and practice based on ethical principles and ideals of service which leads to self-policing of the ranks. Many professions have "Code of Ethics" which describe these in some detail. The idea of having a specialized knowledge implies that there is a community of scholars who contribute to that body of knowledge. That means that researchers are needed to constitute that body of knowledge, that theoretical framework, for the profession. If a profession is going to advance, it must have that community of scholars. Each member of the group shares in the responsibility of adding to that body of knowledge when they accept membership into the organization.

A professional cannot leave all the research up to someone else. They have the responsibility to add to the knowledge base of the profession which granted them membership, gave them license, or permitted them to practice with the group. A community within a profession cannot be segregated into the "researchers" and the "others." All must do their part to advance the profession, or it fails to exist as a profession.

Those who conduct the research also have a responsibility to share the results with others. Whether results are "significant" or not, it must be shared. There is a difference between statistical and practical significance. By sharing results which did not reach statistical significance one might help the profession by (1) showing that one way is just as good as another, (2) showing what did not work, and/or (3) helping others eliminate a variable they were considering. Professionals have the responsibility of disseminating the results of the research through reports, papers, journal articles, etc. When a study is done, quite often the written work is one-half done, because much sharing has yet to occur. It is your responsibility to prepare those articles and papers.

The professional also has a responsibility to continue that training to stay up-to-date on developments in the field. Not all training (education) needs to be formal. Each of us

must continually learn and remain in a dynamic state relative to our body of knowledge. Therefore, research is for you even if it is just as a consumer.

Research is Fun

When one perceives the researcher to be that "egghead in an ivory tower," crunching numbers in a little cubicle, day-after-day, with few human relations skills, or interests in "real world" problems; then research does appear to be exceedingly boring. In fact, research is exciting. When one selects research problems of importance to the profession, problems that when resolved will really help people or help the profession advance; then one can receive a lot of intrinsic and extrinsic motivation and satisfaction from conducting research.

I dearly love to teach. I look forward to each class which I teach, because I suspect that all teachers are a bit of an egotist and love to hear themselves talk. So, I am delighted to hop out of bed each morning when I get to teach and look forward with great anticipation to getting into the classroom that day. I can also say that on the days when I am not to teach, but am to do research, I can have the same fervor and excitement. I can often hardly wait to get to the office to retrieve that printout from the computer and see what I have found.

Yes, Research is a Process for Everyone. You may conduct it, assist with it, reply to the mailed questionnaire, be a subject in it or consume it. However you find yourself involved, it is a process and a product with which you must be involved if you are to be a professional among a community of professionals.

PART III
RESEARCH REPORTS

An Analysis of Business Documents: Negative News Applications

Marsha L. Bayless
Stephen F. Austin State University

Abstract

The study involved collecting and analyzing negative news letters and memos used in business. A panel of three business communication instructors examined several elements in each of the documents. The type of correspondence, the approach of the document toward negative news, the use of negative words, the inclusion of alternatives, and the focus on the reader were determined for each document. The results indicated that negative news documents in business included direct and indirect approaches and that the documents focused on both the writer and the reader.

Introduction

Business communications textbooks propose that the best way to convey negative news is by using an indirect approach when creating a document (Adelstein and Sparrow, 1990; Bovee and Thill, 1989; Himstreet and Baty, 1990; Locker, 1989; Murphy and Hildebrandt, 1988; Quible, Johnson, and Mott, 1988). Further, a number of the texts do not indicate that a direct approach for negative news is an option.

Do business individuals use the indirect plan when actually writing negative news letters? Research studies have indicated that business communications instructors and businesspersons have different perspectives concerning business writing (Adkins, 1982; Lemley, 1983). By analyzing business documents, an understanding of actual applications can be developed.

Another area of interest in business communication is the you-attitude or reader focus. A letter or memo which uses the you-attitude focuses the writing on benefits that the reader will receive (Gibson and Hodgetts, 1990; Harcourt, Krizan, and Merrier, 1991; Himstreet and Baty, 1990; Locker, 1989). By using a focus on the reader, the document can convey tact and positive tone as well as encourage goodwill toward the reader.

Adkins (1982) found that businesspersons and business communication instructors differed significantly in their views toward the you-attitude. Actual business letters could be analyzed to determine if the you-viewpoint is used in letters and memos conveying negative news.

An analysis of business documents could also include other concepts discussed in business communication textbooks such as the use of negative words, the inclusion of alternatives, the length of the document, and grammatical errors.

The purpose of the research study was to analyze actual business letters and memos which were used to convey negative news. Several aspects of the letters and memos were evaluated. The key issues were the type of document (letter or memo), the choice of writing approach (indirect or direct), the focus of the document (you-viewpoint), the use of negative words, the use of alternatives, the length of the communication, and the use of grammar.

Method

The 1400 students who graduated from the School of Business at Stephen F. Austin State University during the five-year period from 1974 to 1979 served as the population for the study. Graduates from those years have the potential for 10 to 15 years of business experience. At that point in their careers they should have had opportunities to write documents conveying negative news.

As the size of the population was 1400, a sample size of 225 was chosen to accurately reflect the population within 6% (Wunsch, 1986).

The departments and percentage of graduates during 1974-1979 include Accounting, 39.3%; General Business, 17.7%; Management and Marketing, 25.8%; Economics and Finance, 8.0%; and Computer Science, 9.2%. The proportional stratified random sample composed of 225 graduates consisted of a random selection from each of the departments in the School of Business. A list of graduates with current addresses was obtained from the Alumni Office. After the address lists were numbered, the computer program SYSTAT (Wilkinson, 1987) was used to generate random lists to select the participants from each department.

Participants in the study were asked to answer several demographic questions and were then asked to provide a

copy of an actual letter or memo that their business used to convey negative news.

Mailing Procedure

In February 1990, a mailing using first-class postage as well as a postage-paid envelope was sent to the 225 individuals in the sample. A second first-class mailing with postage-paid envelope was sent to nonrespondents in May 1990.

Four letters were returned with incorrect addresses. After the two mailings, thirty-four responses were received for a return rate of 15.4%. Of the respondents, 15 indicated that they did not use negative news documents. The nineteen individuals who indicated use of negative news documents returned a total of 28 documents which were used in the study.

Participants in the study submitted copies of actual documents used to convey negative news. Participants indicated whether or not they wrote the document as well as their level of satisfaction with the document. Additional demographic information (age, gender, employment status, present position, location of company, size of company) was also collected.

Any information which would identify the writer or the company was removed prior to the document analysis.

Evaluation by Panel

A panel of three business communication faculty members were asked to independently analyze the 28 documents and make seven decisions about each document. The decisions made included the following:

1. type of document (letter, memo, other)
2. approach (direct or indirect - 5 categories)
3. negative words (5 categories)
4. alternatives (3 categories)
5. reader focus (5 categories)
6. length of document (5 categories)
7. grammatical errors (focusing only on subject/verb agreement and/or incomplete sentences - 5 categories)

Of the possible 196 decisions on the 28 documents, the three panelists all agreed on 107 items (54.6%). On 70 items at least two panelists agreed (35.7%) on the decision which was used. No panelists agreed on the remaining 19 items (9.7%); therefore, a median answer was selected.

Results

The negative news documents included in the study consisted of letters (75%) and memos (25%). When asked to determine how satisfied they were with the documents, 32.1% of the contributors indicated they were very satisfied while the majority of 57.1% said that they were somewhat satisfied.

When the participants were asked about the authorship of the document, 42.9% said "I wrote it" while 35.7% indicated that "Someone else in the company wrote it".

Fifty percent of the respondents worked for companies with more than 225 employees. The genders of the respondents were 78.6% male and 21.4% female. All the contributors were employed full-time in business. Of the respondents 46.5% were from the greater Houston or greater Dallas/Ft. Worth areas.

Approach of Documents

The negative news documents included approaches ranging from indirect to direct. The most frequent approach (25%) was the indirect approach with reasons explained, followed by the bad news. The approach receiving the next largest response was one with a one-line buffer with the bad news in the second line (21.4%). An approach with the bad news in the first sentence, an approach with a one paragraph buffer and the bad news at the beginning of the second paragraph, and an approach with the bad news implied but not stated all received the same frequency of 17.9%.

The following paragraphs were selected from the openings of three of the business documents:

Indirect approach with reasons explained

> The most serious problem facing America today is drug abuse. It is an epidemic that has permeated every corner of our society. It is a problem children face in the school and a problem we must address on the job. We have all seen and heard how drug abuse can disrupt families, ruin careers, and in some cases literally snuff out lives. Numerous studies report that drug abuse costs American industry billions of dollars per year in lost productivity, theft, accidents, absenteeism, violence, unacceptable products, and poor customer service.
>
> We as the leader in our industry and being COMPANY NAME must also exhibit the commitment of saying "no to drugs" within our workplace. We have an obligation to our employees to do whatever is possible to keep our company drug free.
>
> Therefore, COMPANY NAME is developing, and in the future, will implement, a policy to insure that all of our employees have a working environment that is free of the illegal use and abuse of drugs.

Shortly, drug testing will be implemented for both employees and applicants. In addition, . . .

Negative news in first paragraph

Throughout the past year and a half, our company has undergone many changes. Currently, reorganizations are being implemented which necessitate our downsizing in staff. We regret to tell you that as a result of this, your position is being eliminated.

Negative news in first sentence

Your account has been placed on C.O.D. until your past due balance has been paid.

Reader Focus

While the largest percentage of documents (57.1%) included one or two references to the reader of the document, 17.9% had no focus on the reader of the document. Three or four references to the reader were used in 21.4% of the documents.

The following paragraphs were selected from a memo:

Limited use of reader focus

. . . At this time I feel it is necessary to give you this formal written warning regarding certain areas of your performance as a Sales Consultant. I have outlined my areas of concern below. I have also set some goals for you to work toward.

Diane, you seem to have developed a non-responsive attitude toward instructions which I give to you. Diane, when I request something of you I expect you to either tell me that you are unable to complete the assignment or have it completed by the date agreed upon. . . .

Use of Negative Words

Although business writers were careful when choosing negative words, some negative words were used. Of the documents analyzed, 28.6% contained no negative words while 35.7% contained only one or two negative words.

Examples of excessive use of negative words included the following passages:

Negative words in first and last paragraphs of a letter

This is in answer to your inquiry of May 31 concerning claim for damages to your vehicle which you contended resulted from "bad diesel fuel". . . .

We hope this outlines to you our position now, and in the future, regarding your contention. It is unfortunate that the circumstance developed; however, your problem was not caused by our operation.

Negative words in closing sentence of memo

I am sorry for any inconvenience this may have caused you.

Alternatives

Nearly two-thirds of the documents (64.3%) did not include an alternative to the bad news. One-fourth of the documents included one alternative to the bad news.

Length of Documents

The length of the documents varied. The highest percentage of 32.1% were of documents less than 100 words in length. The documents in the 101-150 word range and the 151-200 word range each encompassed 25% of the total. The remaining 17.8% of the documents were longer than 201 words.

Grammatical Errors

Only two kinds of grammatical errors were evaluated in the study. Those errors were subject/verb agreement and incomplete sentences. None of the documents in the study included either of those errors.

Conclusions

The following conclusions can be drawn from the study:

1. Five different indirect and direct approaches were examined for the negative news documents. While the indirect approach was used most frequently, no single approach received a large majority of the response. Writers of these business documents used several direct and indirect approaches toward negative news.

2. Most of the negative news documents focused on the writer of the document rather than the reader of the document.

3. Basic grammatical errors such as the agreement of subject and verb and the use of incomplete sentences were not found in the documents.

4. A larger number of negative news documents would have permitted more sophisticated statistical analysis as well as broader interpretations.

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An Analysis of Communication Effectiveness in Public Accounting

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Abstract

The purpose of this research was to contribute to future accounting education by determining the needs of the profession. C.P.A.'s at local, regional and "Big Six" firms were surveyed to obtain their opinions of the capabilities needed for success in public accounting. The responses indicated that these capabilities included strong communication and interpersonal skills. Staff accountants are the output of our undergraduate accounting education. Therefore, the C.P.A.'s also evaluated their staff accountants' verbal and written skills and considered them weak. Since C.P.A.'s regard effective communication skills as important for success in their profession, more attention should be given to improve these skills in the accounting curriculum.

An Analysis of Communication Effectiveness in Public Accounting

"Today, employees with poor communication skills cannot progress far in public accounting" is the response given by a sampled majority of C.P.A.'s. However, when asked to evaluate their staff accountants' written and verbal communication skills, the C.P.A.'s considered these skills weak.

This information was obtained from a recent survey of practicing C.P.A.'s. Prior to designing this survey, personal interviews were conducted over a six-month period of time. These interviews involved accountants at various levels employed in local, regional, and "Big Six" firms. Ultimately, a survey instrument was developed which included questions with regard to undergraduate courses in the accounting curriculum, statements on the value of communication skills in public accounting, and evaluations of technical knowledge and communication skills.

This survey was mailed to 1,000 randomly selected practicing accountants who represented a cross-section of C.P.A.'s. There was approximately a forty-five percent response rate which contributed to the validity and reliability of this study. A program using SPSS-X was designed to perform the relevant statistical analysis.

A frequency distribution (refer to Exhibit 1) was used to determine the characteristics of our sample. Of the number of C.P.A.'s who responded, the vast majority were male (89.2%) and partners (67.5%). The functional area of expertise was mixed, in that, 38.4% worked in audit, 44.6% worked in taxes, 5.4% in MAS and 11.6% in other. Most respondents, 67.5%, worked ten or more years in public accounting and 61.4% were employed at local firms. The greatest number of C.P.A.'s, 71.7% said their highest level of education was a B.S. or B.A. in accounting. The other percentages were B.S. or B. A. in other majors, 2.4%; M.S. in accounting, 5.4%; M.B.A. 12.0%; and other degree, 8.4%. Importantly, it should be noted that the characteristics of this sample may not represent all accountants employed in public accounting. Although the response rate was excellent at 45%, the survey was restricted to C.P.A.'s.

Respondents were asked a variety of questions which were organized into three separate groups. The first group related to the C.P.A.'s professional experience to his or her desire to have taken additional undergraduate courses in certain academic areas. Most C.P.A.'s strongly agreed that they should have taken more courses in computer science and oral/written communication. They felt less strongly about taking more accounting courses, and were quite mixed about the value of additional liberal arts courses in their undergraduate accounting curriculum. Interestingly, a few commented on the survey that computer courses were not available to them at the time they attended college.

The second part of the survey consisted of a series of statements relating to public accounting and communication skills. These statements were formulated as a result of conducting personal interviews with practicing C.P.A.'s. Respondents expressed their opinions on these statements using a five point scale ranging from strongly agree to strongly disagree.

The majority of C.P.A.'s agreed that accounting majors make the best accountants. The results were somewhat mixed when asked if liberal arts majors would be unsuccessful at their firms. Most strongly agreed that good communication skills were important for success in public accounting. Relating to this, opinions were mixed about technical skills being the most important factor for promotion at their firms. Most C.P.A.'s desired a segment on communication skills in the initial orientation program for staff accountants. The amount of time which would be allocated to this was not specified in the survey. There was general disagreement that communication skills were more important in audit than taxes. This can be interpreted that C.P.A.'s find communication skills more important in taxes than in audit. However, given the responses to the above statements, we think it is more likely that C.P.A.'s view communication skills as important, regardless of one's functional area of expertise. There was strong agreement that employees with poor communication skills cannot progress far in public accounting. Last, there was moderate disagreement that written skills will become more important than verbal skills as one moves up the organizational ladder. One can interpret this as meaning that verbal skills will become more important than written. Yet, given the above responses, we think it is more likely that respondents considered written and verbal communication skills equally important.

In the third group of questions, C.P.A.'s were asked for an evaluation of their technical and communication skills as well as those of their staff accountants. Respondents were asked their opinions using a seven point scale ranging from extremely strong to extremely weak. When evaluating present skills, the majority of C.P.A.'s evaluated their technical knowledge, written and verbal communication skills as moderately strong to strong. On the other hand, the majority of C.P.A.'s evaluated their staff accountants' technical knowledge and verbal communication skills with mixed feelings. Moreover, an overwhelming 84.5% evaluated their staff accountants' written skills with mixed feelings or considered them weak. When taking the "ideal" into consideration, most C.P.A.'s agreed that their technical and communication skills should either be strong or extremely strong. Respondents desired all of these skills to be strong for staff accountants.

Ultimately, a needs assessment was performed. This was accomplished by comparing the responses of present to ideal skills. The needs ranged on a five-point scale from no needs to maximum needs. Data was collapsed into a five-point scale as a result of the response evaluating the present and ideal skills mentioned above. Most respondents had minimum needs in technical knowledge and minimum to moderate needs in verbal and written communication. They perceived minimum to moderate needs for staff accountants in technical knowledge skills and largely moderate needs for verbal communication skills. Most importantly, in the written area, C.P.A.'s viewed their staff accountants' needs to be strong.

In this research, C.P.A.'s were asked to specify their opinions on some of the capabilities needed for success in public accounting. It is evident from their responses that these capabilities include strong communication and interpersonal skills. We consider most staff accountants to be the output of our current undergraduate accounting programs. C.P.A.'s were asked to evaluate their staff accountants' verbal and written communication skills. As previously stated, these skills were considered relatively weak with strong needs particularly in the area of written communication.

Accounting undergraduate education should be relevant to the accounting profession. The purpose of this research was to contribute to future accounting education by communicating the needs of the profession. By the year 2000, there will be extensive changes in undergraduate accounting programs. While controversy exists regarding the content of the curriculum, our opinion is that consideration be given to include communication courses that will develop verbal and written skills.

Exhibit 1
Survey - Frequency Distributions

Some background information about yourself is requested. Please circle the answer which corresponds to your choice.

1. Your gender is

10.8%	89.2%
Female	Male

2. Your accounting position in the firm is at the level of

5.4%	23.5%	67.5%	3.9%
Senior	Manager	Partner	Other

3. Your functional area of expertise is

38.4%	44.6%	5.4%	11.6%
Audit	Taxes	MAS	Other

4. Your length of time in public accounting is

1.8%	16.9%	13.9%	67.5%
0-4 years	5-7 years	8-9 years	10 or more

5. You would classify your firm as

61.4%	7.8%	30.8%
Local	Regional	Big Six

6. Your highest level of education is

71.7%	2.4%	5.4%	12.0%	8.4%
BS/BA in Accounting	BS/BA in Other	MS in Accounting	MBA	Other Degree

Please circle one number that best indicates your opinion.

Knowing what I know today, I would have selected more undergraduate courses in the following academic areas:

	Strongly Agree	Agree	Mixed Feelings	Disagree	Strongly Disagree
7. Accounting	13.7%	31.3%	26.9%	22.5%	5.6%
8. Liberal Arts	9.5%	23.4%	29.7%	27.8%	9.5%
9. Computer Science	48.8%	38.3%	6.8%	4.3%	1.9%
10. Oral/Written Communications	45.5%	40.6%	7.3%	4.8%	1.8%

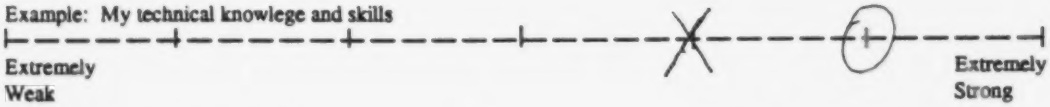
Please respond by indicating your opinions on each of the following statements.

	Strongly Agree	Mixed Agree	Feelings	Disagree	Strongly Disagree
11. Accounting majors make the best accountants.	43.4%	37.3%	15.7%	3.0%	.6%
12. Due to a lack of technical knowledge, liberal art majors will not be successful in our firm.	24.8%	27.9%	23.0%	21.2%	3.0%
13. The ability to get one's ideas across through verbal and written communications is very important for success in public accounting.	71.1%	27.1%	0.0%	1.2%	.6%

	Strongly Agree	Mixed Agree	Feelings	Disagree	Strongly Disagree
14. Technical accounting skills are the most important factor in evaluating an employee for promotion.	5.4%	27.1%	45.2%	19.2%	2.4%
15. An initial orientation program for staff level accountants should include a segment on communications skills.	31.3%	54.2%	9.% %	5.4%	0.0%
16. An accountant who works in the audit area needs better communication skills than one who works in taxes.	6.O%	12.7%	15.7% 4	5.2%	20.5%
17. Today, employees with poor communication skills cannot progress far in public accounting.	23.5%	51.2%	18.7%	6.0%	.6%
18. Written skills become more important than verbal skills as one moves up the organizational ladder.	7.8%	15.1%	32.5%	38.0%	6.6%

Directions: For each of the following factors, (1) place an "X" on the continuum from "extremely weak" to "extremely strong" that best represents where you presently see that factor; and (2) place an "O" on the continuum that best represents where you would ideally like to see that factor.

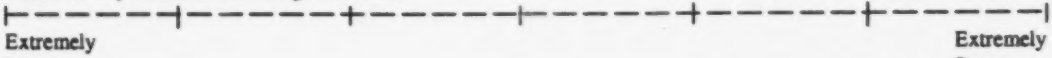
Example: My technical knowlege and skills



Extremely Weak — Extremely Strong

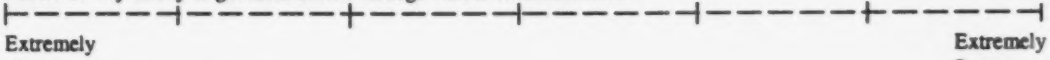
FACTORS RELATIVE TO ME

Factor 1: My technical knowledge and skills



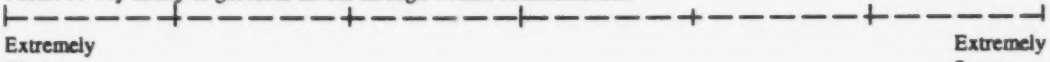
Extremely Weak — Extremely Strong

Factor 2: My ability to get ideas across through verbal communication



Extremely Weak — Extremely Strong

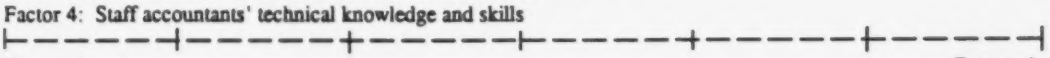
Factor 3: My ability to get ideas across through written communication



Extremely Weak — Extremely Strong

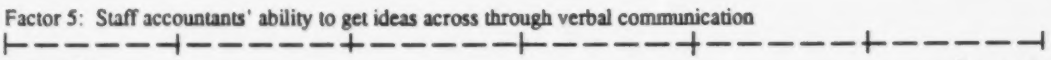
FACTORS RELATIVE TO STAFF ACCOUNTANTS IN MY FIRM

Factor 4: Staff accountants' technical knowledge and skills



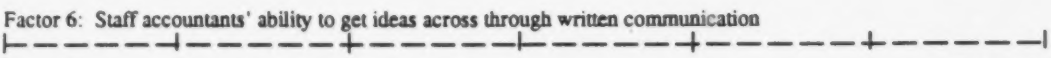
Extremely Weak — Extremely Strong

Factor 5: Staff accountants' ability to get ideas across through verbal communication



Extremely Weak — Extremely Strong

Factor 6: Staff accountants' ability to get ideas across through written communication



Extremely Weak — Extremely Strong

58

An Analysis of the Dictation Practices and Preferences of Today's Business Executives

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Abstract

The study examined the dictation practices and preferences of today's business executives. A majority of the respondents stated that dictation equipment was available to them for the preparation of their written communication and that over three-fourths of them have used dictation equipment.

The results indicated that the development of dictation skills was important for tomorrow's business executives, that a college-level business communication course should teach the technique of machine dictation, and that future business communication students should master the skill of speaking their words onto paper rather than always writing them.

Introduction

Today's business environment is in a constant state of technological change. Most businesses have incorporated the technological advancements of word processing which attempts to improve written communication and the productivity of managers and secretaries. Flatley concluded that managers expect a marked increase in the use of modern technology to create their written communication (Flatley, 1982). This advanced technology requires new skills and knowledge for both executives and secretaries.

A skill the executive has always relied upon for effective communication requires the ability to compose and dictate effective documents. But, research conducted by Mayer shows that few word origination studies have addressed the importance of dictation skills and the formal training related to these skills (Mayer, 1980).

Satterwhite's research examined how today's technology affects basic communication skills. The research discussed what communication skills including dictation skills were needed by today's graduates (Satterwhite, 1986).

Halpern pointed out that college writing teachers can prepare students to address dictation problems by helping them adapt the familiar process of writing to the unfamiliar requirements of speaking writing (Halpern, 1980).

In today's management of information systems, word processing has brought about a change in the way communication is completed. Word processing requires extensive use of machine dictation. The executive's ability to dictate effective documents from an outline other than writing out the entire document is an important cost saving measure.

One of the most frequent complaints from word processing supervisors is that managers and executives lack the ability to dictate properly. In some businesses, word processing centers receive up to 80 percent of the documents in long hand form which reduces the efficiency of both the dictator and the transcriber.

The need for speed, accuracy, and economy in communication procedures has never been greater. Many believe the answer to most correspondence problems is in the use of dictation equipment. On the basis of years of experience through countless studies conducted by Dictaphone Corporation and its customers, the following average of various methods of dictating and transcribing have been determined (Dictaphone, L-514).

Table 1
***Words Per Minute** **

Method	Authoring	Taking	Transcribing	Net Production Rate
Long Hand	10	0	10	10 words per min.
Short Hand	20	20	15	17.5 words per min.
Machine Dictation	40	0	15	27.5 words per min.

*Source: "Electronic Dictation," Dictaphone-Pitney Bowes, L-514.

According to the Dartnell Institute Target Survey, A Poll on Topics of Significant Interest To Business Executives, the cost of dictating and transcribing the average business letter has reached $10.26 for 1989 (Dartnell, 1989). This letter cost was based on a letter that was dictated by a "boss" or correspondent to a secretary on a face-to-face basis. According to Dartnell, if one wants to find a business letter that

costs less, one will have to turn to machine dictated letters. Dartnell began reporting the cost of a letter which was dictated through the use of a machine in 1977. Today, Dartnell's research demonstrates the cost-saving using dictation to machine is approximately 22 percent less or $7.97 when a letter is produced through the use of dictation equipment rather than face-to-face dictation (Dartnell, 1989).

Purpose of the Study

The purpose of this study was to examine the dictation practices and preferences of business executives. A nationwide random sample of 1000 business executives were questioned about their specific dictation practices and procedures. The executives were also asked to rate the importance of various criteria in the development of a dictation skill.

The significance of this study was reflected in the advancement of word processing systems. This new technology has caused major changes in the way written communication is created. Organizations that have implemented word processing systems now provide executives with the opportunity to create their written communication utilizing machine dictation rather than the traditional handwritten draft. Thus, many executives have developed effective dictation skills, and this study sought to examine the opinions of executives regarding what dictation skills are needed by today's executives.

Need for the Study

If businesses are to have the type of employees it needs and if today's graduates are to have the necessary skills to be successful, the content of all undergraduate courses these students study must be appropriate. The relevancy of the content of a business communication course is just as important as any other course in the college curriculum. In order to maintain an up-to-date business communication course, business communication researchers must regularly assess the practices and procedures of those who work in the business environment with the goal of continually refining the content of this valuable course.

Problem Investigated

The problem investigated in this study was to determine the dictation practices and preferences of business executives. specific questions asked included:

1. Is dictation equipment available to the executives in their current position for the preparation of their written communication?
2. How often have the executives used dictation to create written communication?
3. How important is the development of dictation skills for tomorrow's business executives?
4. How important is it for a business communication course at the college level to teach the technique of machine dictation?
5. Under what circumstances did the executives develop the skill of dictation, i.e. self taught, college course instruction, or on-the-job instruction?
6. According to the executives, how important is the following criteria in developing a dictation skill?
   a. Establishing a dictation routine
   b. Planning before one dictates
   c. Using a brief outline
   d. Spelling difficult and confusing words
   e. Providing the transcriber with all the necessary instructions or details
   f. Mastering the art of speaking their words onto paper rather than writing them
   g. Checking the quality of the transcription
   h. Checking the quality of the dictation

Methodology

A request was sent to members of Professional Secretaries International asking them to submit a detailed questionnaire to a business executive in their organization. Two hundred twenty questionnaires were returned representing over two hundred companies in thirty-two states.

Characteristics of Respondents

The demographic characteristics of the business executives is presented in Table 2.

Approximately two-thirds of the 220 respondents were male and nearly three-fourths were 40 or older. Over three-fourths of the respondents were college graduates and over three-fourths were either mid or top management. The respondents represented a broad cross-section of business and industry.

Findings

A majority of the respondents stated that dictation equipment was available to them for the preparation of their written communication and that over three-fourths of them have used dictation equipment to create their written communication as shown in Table 3.

Table 2
Demographic Characteristics of Business Executives

Characteristics	Frequency	Percent
Gender		
Male	144	66
Female	76	34
Age		
20-29	12	5
30-39	56	25
40-49	71	32
50-59	63	29
60 & Over	18	9
Education Level		
High School	6	2
Trade School	2	1
Some College	38	18
College Graduate	95	44
Post Graduate	79	35
Position in Company		
Top Management	106	49
Mid Management	60	28
First-Line Mgt	21	9
Supervisory	15	6
Other	18	8
Type of Business		
Bank/Finance	20	9
Manuf/Utility	57	26
Sales/Service	23	10
Govt/Education	54	25
Other	66	30

Table 3
Availability and Usage of Dictation Equipment

Questions	Response	Percent
Is dictation equipment available to you for the preparation of your written communication?	Yes	72
Have you used dictation equipment to create your written communication?	Yes	76

When the business executives were asked how they developed their skills at machine dictation, an astounding number of them learned by trail and error. Nearly 80 percent of the respondents developed their dictation skill by teaching themselves as reported in Table 4. Astonishingly, only six percent of the business executives received college course instruction on the proper procedures for developing a dictation skill.

Table 4
Under What Circumstances Did You Develop the Skill of Dictation?

Method	Percentage
Self Taught	78
College Course Instruction	6
On-The-Job Instruction	14
Other	2

When the business executives were asked how important was the development of dictation skills for tomorrow's business executive, a majority of them responded that it was very important if not essential for them to have this skill. As indicated in Table 5, the development of machine dictation skills was considered important or higher by 83 percent of the respondents. One-third of the business executives stated that it was essential for future executives to develop dictation skills.

Table 5
How Important is the Development of Dictation Skills for Tomorrow's Business Executives?

Level of Importance	Percentage
Not Important	8
Some Importance	8
Important	28
Very Important	22
Essential	33

When the responses from the business executives were compared in reference to their position in the company, the findings showed that the higher the business executive's position--the greater the importance of dictation skill development. Thirty-nine percent of the top managers and twenty-eight percent of the mid managers reported that the degree of importance in dictation skill development was essential as can be seen in Table 6.

Table 6
Degree of Importance in Dictation Skill Development as Defined by Position in the Company

Position in Compy	Not Important	Some Importance	Important	Very Important	Essential
Top Mgt	7 %	9 %	21 %	24 %	39 %
Mid Mgt	12 %	7 %	33 %	20 %	28 %
Frst/Line	14 %	10 %	33 %	24 %	19 %
Suprvisry	0 %	8 %	46 %	31 %	15 %
Other	0 %	12 %	44 %	13 %	31 %

As shown in Table 7, when the business executives were asked how important is it for a business communication course at the college level to teach the technique of machine dictation, over half of the respondents stated it was very important or critical. It is also important to note that nearly one-third of the respondents stated it was critical for a college-level business communication course to teach the technique of machine dictation.

Table 7
How Important is it for a Business Communication Course at the College Level to Teach the Technique of Machine Dictation?

Level of Importance	Percentage
Not Important	9
Some Importance	12
Important	28
Very Important	21
Essential	30

When comparisons were made between the business executive's position in the company and degree of importance for a college business communication course to teach machine dictation, a majority from each classification of position stated it was either very important or essential for a college business communication course to teach machine dictation as can be seen in Table 8.

Table 8
Degree of Importance for a College Business Communication's Course to Teach Machine Dictation as Defined by Position in the Company

Position in Compy	Not Important	Some Importance	Important	Very Important	Essential
Top Mgt	11 %	11 %	29 %	20 %	29 %
Mid Mgt	7 %	10 %	30 %	18 %	35 %
Frst/Line	14 %	10 %	24 %	38 %	14 %
Suprvisry	0 %	8 %	46 %	31 %	15 %
Other	0 %	24 %	13 %	19 %	44 %

Regarding the findings of what specific machine dictation skills were deemed important to the development of good dictation practices, the business executives rated planning in advance and providing all the necessary instructions as several of the most important skills to be developed. Table 9 shows the level of importance for each machine dictation skill as rated by the respondents.

Fifty-six percent of the business executives stated that creating a routine as a machine dictation skill as very important or essential. Eighty-six percent of the respondents stated that planning before one dictates is very important or essential. Over half stated that using a brief outline was very important to essential. Nearly three-fourths of the business executives stated it was very important or essential for dictators to provide the transcribers with all the necessary instructions and details. Mastering the art of speaking one's words onto paper rather than writing them was rated very important or essential by seventy-seven percent of the participants. Two-thirds of the business executives stated that it was very important to essential to check the quality of the transcription and more than half of the business executives stated it was important or essential to check the quality of the dictation.

Table 9
Value of Dictation Skills

Skills	Not Important	Some Importance	Important	Very Important	Essential
Creating routine	7	12	25	30	26*
Planning dictation	2	1	11	29	57
Using an outline	10	12	24	31	23
Spelling words	13	13	20	24	30
Providing details	5	5	16	20	54
Mastering speaking	4	3	16	33	44
Checking transcrip	6	7	22	28	37
Checking dictation	7	8	26	32	27

*Percentage of response.

Conclusions

The results of the evaluation of findings led the researcher to the fundamental conclusion that dictation skill development is important to business executives. In addition, the data provided by the study supported the following related conclusions:

1. Dictation equipment is available to a majority of the business executives in their current position for the preparation of their written communication.

2. A majority of the business executives have used dictation machines to create written communication.

3. Nearly three-fourths of the business executives stated that the development of dictation skills was important for tomorrow's business executives.

4. Nearly eighty percent of the business executives stated that a college-level business communication course should teach the technique of machine dictation.

5. Seventy-eight percent of the business executives had to teach themselves the skill of machine dictation.

6. Only six percent of the business executives developed the skill of machine dictation through college course instruction.

7. The majority of the business executives rated as important or higher the various criteria in developing a dictation skill such as establishing a dictation routine, planning before one dictates, using an outline, spelling difficult words, providing instructions, mastering the art of speaking, and checking the quality of dictation and transcription.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are offered:

1. A college-level business communication course should contain a unit on machine dictation.

2. Business communication students should master the skill of speaking their words onto paper rather than always writing them.

3. Business communication students should become proficient in the usage of some form of electronic dictation equipment.

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Assessing the Preparation for Teaching Office Reading Skills

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Abstract

This research examined the extent that prospective business teachers develop the office reading skills of proofreading, verifying, and comprehending detail. On a 60-item test, based on actual office documents, they had a mean score of 51.4, or 86%, of the items correct. Juniors, seniors, and post-baccalaureate students from 8 of 10 institutions that prepare business teachers in Virginia participated in the study. Previous research established levels of performance for high school students on the test items. The performance of the prospective teachers was considerably better than high school business students, but not at a level desirable for setting an example in a teaching situation. They were especially weak in proofreading, scoring only 81.5%, or roughly 16 out of 20 items correct.

Introduction

The National Center on Education and the Economy ("High Skills. . ., " 1990) reports that worker productivity is growing only one-third as fast as it was in 1973. One of the major causes of this decline is a lack of workplace basics, or literacy, (Carnevale, Gainer, & Meltzer, 1988) among young people coming to the job. Employers continue to express concern about the preparation of workers, noting an alarming disparity between skills needed for our emerging technological society and those prospective employees have. For example, a poll of human resource officers of the nation's 1,200 largest corporations revealed that these organizations interview 7 to 8 applicants to find one acceptable employee ("Bosses Are Unhappy. . ., " 1990).

The development of technical, job-related reading skills has been and continues to be of concern to educators. In 1979, Seifert noted that reading on the job is often quite different from reading in the classroom, while Hillestad (1979) noted the existence of a need to determine how well students prepared for office work can cope with reading demands on the job. Further, Martin and Tolson (1985), reporting on a survey of employers sponsored by the Virginia Occupational Information Coordinating Committee to determine the impact of technological change on the workforce, identified four new targets for educational emphases that will help employees meet changing skill requirements. The first of these includes expansion of basic skills instruction to encompass reading and understanding technical materials.

Research conducted by the Educational Testing Service (From School. . ., 1990, pp. 13-14) provides specific information regarding differences in workplace reading and school-based reading. In examining 17-year olds performance, they found that even for those rated as adept readers on school-based literacy assessment, 23% could not perform satisfactorily on workplace literacy reading tests. This type literacy, called "Document Literacy," is described as

> The knowledge and skills required to locate and use information contained in job application or payroll forms, bus schedules, maps, tables, indexes, and so forth. (p. 13)

Thus a need exists to develop a closer match between reading taught in schools and reading skills needed in the workplace, which is the major focus of adult reading. For office work, Ross (1979) and Salzman (1979) identified three unique, job-related reading skills: proofreading, verifying, and comprehending detail. Building on their work, Schmidt (1982) examined the performance of high school business students on the three skills and learned that students preparing for office occupations did have better proofreading skills than business students not in occupational offerings. Schmidt (1986) further examined whether prospective office workers can be helped to attain verifying and comprehending detail skills through use of exercise material based on actual office documents. Outcomes of this research indicate that even limited use of the material increased students ability to read it. Thus these skills can be taught.

Research Questions

No research, however, has addressed whether prospective business teachers have developed the skills themselves and are, in turn, likely to teach them. This study was, therefore, completed to answer two research questions.

1. To what extent have prospective business teachers developed the office reading skills of proofreading, verifying, and comprehending detail?

2. How does the performance of prospective business teachers on each of the three reading skills compare to that of high school business students?

Procedures

Procedures for the study required identifying subjects, preparing and administering tests, and analyzing test outcomes.

Subjects

Subjects for the study were juniors, seniors, and post-baccalaureate students enrolled in business teacher preparation programs in Virginia. Approximately 50 students complete business teacher preparation programs in Virginia each year; thus, about 100-110 such students were enrolled at 10 institutions of higher education located throughout the Commonwealth. The business education program leaders at the institutions were contacted and asked to have their students participate. All 10 responded affirmatively.

Preparing and Administering the Tests

A 60-item test was prepared. It contained 50 items used in previous research and 10 new items. The Kuder-Richardson internal consistency reliability estimates (KR-20) values for the 20 verifying and 20 comprehending detail items previously used were .71 and .77, respectively (Schmidt, 1986). For the 10 proofreading items, the KR-20 value was .63 (Schmidt, 1982). These items were, thus, sufficiently reliable for further research use and they can be considered valid in that they were constructed from actual office documents with the reading levels of their content controlled to match those of similar documents. Ten additional proofreading items, also based on an actual office document, were added to provide 20 items for each of the three reading skills.

The 60-item test and directions for completing it were duplicated and copies were distributed to the business teacher educators at each of the 10 institutions. They assumed responsibility for administering the tests and for returning them. The prospective business teachers recorded their answers on op-scans to simplify scoring of the tests.

Analyses of Test Outcomes

Descriptive statistics computed for the total test and for each of the three 20-item parts included means, standard deviations, and minimum and maximum values for the number of items correct. Further, KR-20 values were computed for the total test and for each of the three parts.

Findings

Seventy-one students from 8 of the 10 institutions participated in the study. One institution did not respond after the initial contact even though encouraged to do so through numerous phone calls. Another institution had no students in the business teacher preparation program above the sophomore level. Determining the exact number of students preparing to become business teachers is difficult. However, assuming a total of 100 to 110 students at the junior level or above in Virginia, the 71 students represent a response rate of 65 to 71%.

In answer to the first research question, the prospective business teachers had an average score of 51.4 items correct on the 60-item test with a KR-20 internal consistency reliability estimate of .69 as shown in Table 1. The number correct represents 86%.

For the second research question, the prospective teachers had a mean score of 16.3 for proofreading, missing 4 items out of 20 on the average. For the 10 proofreading items previously used with high school students (n = 1,209), Schmidt (1982) reported a mean score of 7.8. Thus the high school students missed approximately 2 out of 10 items. However, had they completed all 20 items, the number they missed would most likely be more than double the number missed on the 10 items. Comparing results between the prospective teachers and high school students for the 20 verifying and 20 comprehending detail items is more clear cut as each group completed the same 20 items for each skill. The prospective teachers had mean scores of 17.1 and 18.0 for the two skills. Schmidt (1986) reported that after 10 days of instruction, 15 minutes per day, that high school students (n = 305) scored 14.1 on verifying and 14.8 on comprehending detail. Thus for verifying, the prospective teachers missed 3 items out of 20 on the average; while high school students missed 6 out of 20. For comprehending detail, the prospective teachers missed 2 items out of 20; while the high school students missed 5 out of 20.

For the 20 proofreading items, the KR-20 value for the prospective teachers .63. For the 10 proofreading items previously completed by high school business students (n = 1,209), Schmidt (1982) reported a KR-20 value of .54. Twenty items versus 10 most likely increased the reliability estimate value. The KR-20 values for the prospective teachers for the 20 verifying and 20 comprehending detail items were .44 and .55. For the high school students on the same items, Schmidt (1986) reported values of .71 and .77. The number of high school students completing the items was 305 versus 71 prospective teachers, thus the items appeared to be more reliable for the high school students. Further, the distribution of the scores for the prospective teachers probably affected the reliability estimates as their

Table 1
Descriptive Statistics for the 60-Item Total Test and for Each of the 20-Item Parts

Items	n	Mean No. Correct	Standard Deviation	Minimum Correct	Maximum Correct	KR-20
60 Items (Total Test)	71	51.4	1.7	39	60	.69
20 Proofreading Items	71	16.3	.2	9	20	.63
20 Verifying Items	71	17.1	1.2	8	20	.44
20 Comprehending Detail Items	71	18.0	1.8	8	20	.55

scores were not distributed over as broad a range as the scores for the high school students.

Discussion

The overall performance of the prospective business teachers on the 60-item office reading skills test, 86% of the items correct, could be considered adequate. They did, however, miss more than 1 item out of 10, hardly a level desirable for grading students' papers.

For proofreading, they displayed a skill level comparable to that of high school students. The prospective teachers identified 81.5% of 20 lines of typed material as matching or not matching rough-draft copy. High school students on a similar test of 10 lines scored 78%. Both groups inaccurately proofread approximately 2 lines out of 10. Considering the brevity of the tests, misreading from rough draft to final copy at this level indicates a definite need for improvement on this skill.

For verifying and comprehending detail, the prospective teachers' performance on the 20-item parts of the test was considerably better than that of the high school students. For verifying, 85.5% versus 70.5% for the high school students; for comprehending detail, 90% versus 74%. The performance of the prospective teachers on these two skills could, however, stand improvement. Expecting scores of 100% on a test as detailed as the one used in this study, a test based on actual office documents, would be unrealistic. Expecting prospective teachers to score on all the skills at the 95% level does not seem unreasonable.

Business teacher educators can take several steps to help prospective teachers improve their job-related reading skills of proofreading, verifying, and comprehending detail. First, they can make the prospective teachers aware that the unique skills exist and exactly what each entails (Schmidt, 1988). Second, they can provide the prospective teachers with practice in the use of the skills on actual office documents. Third, they can have the prospective teachers be responsible for grading performance of the skills by students in introductory level courses including keyboarding/typewriting, computer applications, and office systems.

A serious discrepancy exists between development of technical reading skills (From School. . ., 1990; Martin &Tolson, 1985) and requirements of the workplace. Business educators can help eliminate the discrepancy in two ways: (a) by developing an awareness of it and (b) by providing instruction aimed at helping their students develop technical reading skills used in office settings. The prospective business teachers from the 8 institutions included in this study are, no doubt, typical of those at other institutions. Their performance on job- related reading skills substantiates the existence of the discrepancy and indicates a definite need for action.

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A Comparison of Errors Detected: Softcopy vs. Hardcopy

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Abstract

Office productivity depends on workers being able to accurately detect and correct errors in any format or medium. Rapidly advancing technology has altered the structure of the office with the majority of office employees using microcomputers and related software to produce business documents, with error correction occurring at the softcopy stage--on the monitor. This study was designed to determine if the ability to accurately detect errors in keyboarded text is affected by the medium used to detect errors.

Introduction

Office employees are the key link in providing accurate information needed by management to make decisions. Office productivity depends on workers being able to accurately detect and correct errors in any format or medium. Today, the tendency is to depend on the spelling verification feature of word processing software to detect errors. However, not all errors are detected as many appear in final copies of documents (Rubin, 1981).

Research Objective

Increased usage of microcomputers and word processing software has been linked to decreased proficiency in detecting errors and in turn to decreased office productivity (Waters, 1983). Thus, a number of questions arise including: (a) Is it better to proofread from hardcopy or softcopy documents? or (b) Does the color or contrast configuration of a monitor affect an office worker's ability to proofread? An office worker's ability to accurately detect errors in keyboarded text from different media has not been previously investigated. This article, based on a dissertation by Joyner (1989), reports outcomes for four null hypotheses.

Four null hypotheses, based on the research objective, were tested.

1. A significant difference will not exist in the number of errors detected when proofreading hardcopy versus softcopy documents.
2. A significant difference will not exist in the type of typographical errors detected when proofreading hardcopy versus softcopy documents.
3. A significant difference will not exist in the number of errors detected when proofreading text on different monitors--a color monitor, a green on black monitor, or a black on white monitor.
4. A significant difference will not exist in the type of typographical errors detected when proofreading text on different monitors.

Procedure

Individuals enrolled in four community college word processing courses during the sixth week of the 1988 Fall Quarter represented the individuals participating in this study. A pretest was administered, and participants read and detected errors in one of four error detection instruments presented in either a hardcopy or softcopy format. Three different monitor configurations were used for softcopy error detection. Participants were directed to detect and mark or indicate errors; they were told not to correct any errors.

The pretest and the error detection instruments contained six error categories: extra letter, incorrect letter, incorrect punctuation, incorrect spacing, omitted letter, and transposition. The incorrect letter type of error was divided into four subcategories: shift, phonetic, word choice, and

misstroke. Participants reading from a hardcopy document circled with a pencil any errors detected. When reading from a softcopy document, participants used the overstrike feature of the word process software. Errors marked by the participants were organized on a score sheet developed by the researcher.

Participants were not allowed to use a computerized spelling verifier during the error detection process. However, errors that could have been found by the spelling verifier were eliminated from the analyses of data. Omitted from analyses were the extra letter, transposition, and misstroke types of errors.

The data collected were analyzed through an Analysis of Covariance (ANCOVA) using a counterbalanced design with pretest scores serving as the covariates. The number and the types of errors detected were compared to determine if significant differences existed when the four hypotheses were tested at an *a priori* alpha level of .05. If significant differences were identified, the source of the difference was determined by the larger of the two means or by the Duncan's New Multiple Range Test when more than two means were compared.

Analysis of Data

The first hypothesis was used to compare the total number of errors detected by environment--hardcopy or softcopy. As indicated in Table 1, an ANCOVA procedure identified a significant difference between the two means. The mean number of errors detected for hardcopy was 9 versus 6 for softcopy. Therefore, the hypothesis was rejected; more errors were detected when participants read from hardcopy documents.

Table 1
ANCOVA Outcome for Total Errors Detected by Error Detection Environment

Source	df	Sum of Squares	Mean Square	F Value	P>F
Pretest	1	76.07	76.07	7.16	.009
Error Detection Environment	1	93.55	93.55	8.81	.004*
Error	69	732.90	10.62		
Total	71	928.98			

*p < .05.

The second hypothesis addressed the types of errors correctly detected when using different error detection media--hardcopy or softcopy. As indicated in Table 2, an ANCOVA identified significant differences for three types of errors: incorrect letter, incorrect punctuation, and incorrect spacing. A significant difference was also identified through ANCOVA procedures as reported in Table 3 for the shift type of incorrect letter error. More incorrect letter, incorrect punctuation, and incorrect spacing types of errors and shift type of incorrect letter errors were found when participants read from hardcopy documents.

Table 2
ANCOVA Outcomes for Types of Errors Detected

Type of Error	df[a]	F Value	P>F	N	Mean	Standard Deviation
Total Incorrect Letters	1	5.74	.0193*			
Hardcopy				18	9.28	4.87
Softcopy				54	5.92	4.40
Incorrect Punctuation	1	6.73	.0116*			
Hardcopy				18	1.78	.64
Softcopy				54	1.15	.95
Incorrect Spacing	1	8.42	.0050*			
Hardcopy				18	.67	.48
Softcopy				54	.29	.46
Omitted Letters	1	.00	.9828			
Hardcopy				18	.56	.78
Softcopy				54	.63	1.01

[a] degrees of freedom for pretest = 1, for error = 69, for total = 71
*p < .05.

Table 3
ANCOVA Outcomes for Incorrect Letter Type of Error Subcategories

Type of Error	df[a]	F Value	P>F	N	Mean	Standard Deviation
Shift	1	7.02	.010*			
Hardcopy				18	4.94	2.38
Softcopy				54	3.19	2.21
Phonetic	1	2.90	.093			
Hardcopy				18	2.17	2.25
Softcopy				54	1.33	1.74
Word Choice	1	2.21	.141			
Hardcopy				18	2.16	1.42
Softcopy				54	1.39	1.19

[a] degrees of freedom for pretest = 1, for error = 69, for total = 71
*p < .05.

The third hypothesis examined the relationship among the three softcopy error detection environment configurations and the number of errors correctly detected. The ANCOVA results, as reported in Table 4, did not identify any significant differences. Therefore, the color configuration of the monitor was not related to the number of errors found by participants.

Table 4
ANCOVA Outcome for Total Softcopy Errors Detected by Softcopy Error Detection Environment

Source	df	Sum of Squares	Mean Square	F Value	P>F
Pretest	1	62.23	62.93	5.37	.025
Softcopy Error Detection Environment	2	6.53	3.26	.28	.755
Error	40	579.60	11.59		
Total	53	650.98			

The fourth hypothes addressed the relationship between the color configuration of the monitor and the types of errors detected. As indicated in Table 5, the ANCOVA results did not reveal any significant differences for any of the types of errors. Therefore, the monitor's color configuration was not related to the types of errors found by participants.

Table 5
ANCOVA Outcomes for Types of Errors Detected

Type of Error	a df	F Value	P>F	N	Mean	Standard Deviation
Total Incorrect Letters	2	.12	.883			
Dark Blue/ Light Blue				18	6.11	5.20
Black/White				18	5.55	3.47
Green/Black				18	6.11	4.64
Incorrect Punctuation	2	1.26	.293			
Dark Blue/ Light Blue				18	1.00	.84
Black/White				18	1.00	.84
Green/Black				18	1.44	1.15
Incorrect Spacing	2	.47	.477			
Dark Blue/ Light Blue				18	.22	.43
Black/White				18	.39	.50
Green/Black				18	.28	.46
Omitted Letters	2	.73	.485			
Dark Blue/ Light Blue				18	.78	1.06
Black/White				18	.39	.78
Green/Black				18	.72	1.17

a
degrees of freedom for pretest = 1, for error = 50, for total = 53

Conclusions and Implications

Overall, more errors were detected when participants read from hardcopy. Even though the number of errors detected on hardcopy documents was greater than on softcopy documents, the number of errors detected for both types of documents was unacceptable for usable copy. The error detection accuracy by participants was 56%. The number of errors found by participants when reading from hardcopy ranged from 4 to 14 out of a possible 14; when reading from softcopy, the number of errors found ranged from 0 to 14 out of a possible 14.

Error detection is easy with modern technology (Rubin, 1981), but a computerized error detection and correction process is not sufficient to find and correct all errors (Camp, 1983). Only a minimal number of errors were found by participants in this study that could not be located by a spelling verifier. Keyboard operators should visually review text on the monitor for errors that cannot be identified by a spelling verifier.

When detecting errors, office workers are not timed. The time limitation of ten minutes imposed in this study may explain why one of the four error detection environments was not identified as more conducive for finding errors than another. A study, simulating an office environment, is recommended to determine the effect of increased time of the error detection process.

Today's information-oriented society is dependent upon timely and accurate information (Howard, 1984). Business educators face a tremendous challenge in preparing office employees with needed error detection skills. The extent of undetected errors in this study indicates that error detection instruction should be emphasized in all phases of education.

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Development of a Rating Scale for Determining Importance of Ethical Issues in Business

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Abstract

Public attention has focused on the need for heightened emphasis on ethical behavior in business. The goal of this research was to identify those ethical issues that are viewed as most important by business practitioners and business faculty. Business faculty from two southern universities and business persons from the two university communities were surveyed to gain their responses to a list of 52 potential ethical issues in terms of their importance or lack of importance to the business community. Based on their responses, an overall ranking of issues was obtained which will serve as the basis for the design of a Kohlberg-type episodic instrument for assessing business ethical orientation.

Background

Because of a growing interest in the subject of business ethics, much discussion is occurring as to whether ethics can be taught, assessed, or improved among college students. If it is assumed that ethical development can be assessed or measured, then an appropriate means of measurement must be selected. Argument exists to support the use of numerous techniques for measurement of ethical development, including interview (Baxter-Magolda, 1987), analysis of written statements (Taylor, 1983), and response to objective items (Thomas, 1989).

The basic and overriding question of this research is whether a paper and pencil instrument can be developed to assess ethical orientation of students in regard to business dilemmas. Such instruments have been developed to look at universal ethical concerns (e.g., Kohlberg, 1969). In addition, some professional groups have developed instruments for business settings (e.g., Budnar, 1987). A practical approach has typically been taken in the development of many instruments. It appears, however, than a need exists to develop instrumentation that is based on theoretical considerations about moral/ethical reasoning. Furthermore, any such instrument should accurately reflect ethical concerns as viewed by the business community. Appropriate research techniques must then be employed to assure credibility of results.

The typical evaluation technique used in the study of moral-reasoning processes has been that of observing how people respond when confronted with a number of moral-decision situations, also referred to as incidents or episodes (Thomas, 1989). The responses are then used as the basis for deriving generalizations about the individuals' moral/ethical development. This practice of using a few moral episodes as the foundation for broad-range conclusions has been widely adopted, but it is not without difficulties; it has evoked questions about the validity of the techniques, particularly concerning social class (Thomas, 1989) and sex biases (Cortese, 1984). Unless the moral/ethical episodes included in the instrument are carefully structured, results may be distorted by such biases. Another identified weakness of such instruments is their lack of predictive validity; that is moral/ethical development scores do not necessarily accurately predict ethical behavior (Cortese, 1984).

An overarching framework has been proposed for the process of developing instrumentation for ethical reasoning that addresses some of these issues (Thomas, 1989). Several steps are suggested as appropriate for creating instruments: 1) Generate a pool of potential moral/ethical concerns, 2) select knowledgeable judges to identify from the list of potential moral/ethical concerns those that they judge to be ethical issues, 3) establish a hierarchy of incidents based on the responses received from judges, 4) prepare test episodes. Various studies, (e.g., Budnar, 1987) have utilized this procedure or some form of it.

The present study was concerned with the completion of the first three steps just described. A second and separate phase of this research will involve the development of an instrument designed to measure ethical response to business-based episodes identified in this study. The final instrument

will follow the Kohlberg model of moral development (Kohlberg, Colby, Gibbs, Speicher-Dubin, & Powers, 1978).

Purpose

This study identifies and ranks a set of ethical issues that business faculty and business practitioners feel are important to the business community and therefore to the business classroom.

Procedures

A list of 52 potential moral/ethical concerns related to business and business practices was devised, based on examination of business ethics textbooks (e.g., DeGeorge, 1990; Frederick, Davis, & Post, 1988; Hay, Gray, & Smith, 1989), discussions with business faculty, current events, etc. These 52 items formed the basis for the development of the Issues Rating Scale. Several faculty members and business persons were asked to pilot test the instrument in preparation for the final version and to ascertain the approximate time necessary for completing the questionnaire. A panel of judges was then selected to rate the importance of each of the issues; the panel was comprised of two sectors: business faculty and business practitioners.

The pool of judges consisted of judges from the business faculty category and from the business practitioner category. The business faculty cohort consisted of the business faculties employed at Stephen F. Austin State University, Nacogdoches, Texas, and at the University of Southern Mississippi, Hattiesburg, Mississippi. Both campuses are located in rural southern settings and have approximately the same student enrollment. All faculty members (n = 174) in these schools of business were sent a survey consisting of the Issues Rating section described previously as well as several items designed to obtain background information from participants (such as teaching area, years in teaching, and perceptions about ethics of business students). Ninety-two questionnaires were distributed at Stephen F. Austin State University; 82 were distributed at the University of Southern Mississippi. Usable data were returned by 52 of the respondents (29.9%) in this cohort.

The business practitioner cohort (n = 203) was created by surveying businesses in the communities immediately surrounding the two universities. Manufacturers lists were obtained from the area chambers of commerce. Correspondence was addressed to the president or other executive/managerial officer. The business version of the survey form contained the same Issues Rating section sent to faculty, but the background information requested was different. Questions in this section referred to type of business, characteristics of the business, and job title of the respondent. The manufacturers list for the Hattiesburg area included 105 company names, all of which were sent a survey form. Similarly, 98 surveys were mailed out to the Nacogdoches-Lufkin manufacturers. Usable data were received by 61 respondents (30.0%) in this pool.

Data Collection and Analysis

The Issues Rating Scale listed 52 items as explained previously and requested that judges rate each issue as to its importance as an ethical concern for business. The two ends of the unnumbered graphic scale were labeled "Unimportant" and "Extremely Important," with a continuous line shown connecting them. Respondents were asked to make a pencil/pen mark at the point on the line that conveyed their own assessment of the importance of each issue. This rating method was selected because it increases response variance by allowing the scorer to divide the scale into more intervals than a typical numeric Likert scale, thus leading to higher item reliability (Thompson, 1981).

While the respondent is freed from hair-splitting deliberation in ratings, this format allows for respondents' graphic ratings to be transformed into numeric ratings for purposes of analysis. Markings indicated by respondents on the unnumbered scale were transformed into numeric data by imposing a scale that divided the unnumbered line into 15 equal intervals. The items were scored by placing a segmented transparent overlay over the graphic scale and marking the number 1 through 15 nearest the respondent's marking. In cases where the respondent's mark fell directly between two segments, the score nearest the center of the scale was selected.

Findings

Demographic Characteristics

Usable data were returned by 113 respondents, including 52 respondents in the faculty cohort and 61 respondents in the business practitioner cohort. The business faculty cohort included individuals from 10 different teaching areas within business. The mean length of teaching experience of the respondents was 14.25 years. Of the 52 respondents, 46 (88.5%) indicated that they regularly include some teaching of ethics in their business courses, with the most prevalent method being inclusion of discussions of ethics along with regular course content.

The business practitioner cohort represented a wide range of business types as indicated in Table 1. Forty-nine (80.3%) of the questionnaires for this cohort were completed by a president, vice president, or division manager for the given company. The remaining 12 (19.7%) were completed by a supervisor or other lower managerial employee.

Table 1
Breakdown of Business Cohort by Business Type

Business Type	Frequency (n=61)	Percent
Agricultural/Animal/Food Products	12	19.7
Chemical Products	4	6.6
Construction Materials	8	13.1
Industrial Supplies	3	4.9
Oil/Gas/Energy Producing	2	3.3
Printing/Publishing	6	9.8
Textile/Clothing/Furniture Products	1	1.6
Transportation Products	1	1.6
Wood/Paper Products	10	16.4
Other	12	19.7
No Response	2	3.3

As judged by the number of persons employed by these businesses, over half would be considered smaller companies, with 24 (39.3%) reported as employing fewer than 50 persons and an additional 11 (18.0%) reported as employing 50 to 100 persons. Interestingly,however, eight (24.6%) of the respondents reported that their businesses employ over 1000 persons.

Since some of the items in the instrument deal with international business issues, respondents in the business cohort were also asked to indicate the degree to which their businesses have foreign ties. Approximately one-third (20) of the respondents indicated that their businesses have foreign customers. Similarly, 36.1% (22) indicated that they utilized foreign suppliers. In addition, seven (11.5%) of the respondents indicated that their companies have foreign branches.

Analyses of Importance Ratings

Analyses of the importance ratings were run using the entire sample (n = 113), the faculty cohort (n = 52), and the business practitioner cohort (n = 61). At least two ways of analyzing these ratings is possible. First, the measurement scale could somewhat arbitrarily be divided into various segments indicating the strength of the respondents' mean ratings for each item. For instance the 15 point scale used in the present study could be divided into "low" (1 to 5), "medium" (6 to 10), and "high" (11 to 15) ratings. This method is problematic, particularly in cases in which there is not an even distribution of ratings across all the possible levels. For instance, in the current analysis using responses for the entire sample, no responses were indicated in the "low" (1 to 5 range).

A second method of analyzing the ratings is to determine mean ratings for each of the items and then to rank order the items by these mean ratings. This method is more promising as it allows the items to be relatively compared against each other rather than against some arbitrarily determined standard. In addition, it allows for ratings of items with one subsample cohort to be compared against the ratings of another cohort. Considering the strengths of this second method, it was the one used in the present study.

Mean ratings for each item were calculated and items were then rank ordered by the magnitude of the mean ratings. The 20 items receiving the highest ratings across the entire sample are presented in Table 2, along with their respective ranks. As a point of comparison, the ratings and ranks for these items across the two subsample cohorts are also given.

These data indicate that there is a high degree of consistency against the two subsample cohorts as to which items are the most important ethical issues among the 52 presented. Fourteen of the 20 items receiving the highest ratings when rated across the entire sample were also included in the top 20 issues across both cohorts of the sample. These items seem to cluster around three major topics, namely environmental issues (Items 35, 41, 10, 1, and 13), employment issues (Items 8, 32, 12, 9, 47, and 19), and corporate/individual integrity (Items 51, 29, 46, and 22).

The 10 items receiving the lowest ratings across the entire sample are presented in Table 3, along with their respective rankings. As a point of comparison, the ratings and ranks for these items across the two subsample cohorts are also given. As was true of the most highly rated items, the 10 lowest rated items were also consistently rated low across both subsample cohorts. Interestingly, five of these 10 items (Items 11, 14, 40, 7, and 27) involve international business issues, indicating that the respondents do not regard these issues as important as ethical issues in other areas. This is particularly noteworthy considering that a number of the companies rely upon foreign customers and/or suppliers in their business operations.

Conclusions and Recommendations

The relative ranking derived from the Issues Rating Scale will be utilized in the development of ethical episodes deemed most important to a business audience. These episodes will comprise a future instrument which will measure individuals' business ethics orientation. Possible applications for such an instrument would include administration to groups of business students and faculty, as well as business personnel and job applicants. The present analyses indicate that issues relating to the environment, employment, and corporate/individual integrity are considered important by the business community, and would consequently serve as appropriate content for ethical episodes. By contrast, international business issues, deemed to be of less importance, would not serve as adequately as the focus of ethical episodes.

Table 2
Mean Ratings and Ranks for 20 Highest Rated Items

Item[1]	Full[2]	Faculty[3]	Business[4]
Disposal of hazardous waste (35)	13.018(1)	12.942(2)	13.082(3)
Honesty advertise/label products (51)	13.009(2)	13.157(1)	12.885(5)
Theft by employees of co. property (8)	12.973(3)	12.706(5.5)	13.197(2)
Oblig. employees give full efforts (32)	12.876(4)	12.385(10)	13.295(1)
Pollution of air and water (41)	12.823(5)	12.808(4)	12.852(6)
Acceptance of bribes by employees (12)	12.625(6)	12.588(7)	12.656(9)
Removal product health/safety risk (29)	12.580(7)	12.863(3)	12.344(11)
Protection of natural resources (10)	12.531(8)	12.173(12)	12.836(7.5)
Disposal of solid waste (1)	12.487(9)	12.077(14)	12.836(7.5)
Communication of sensitive info. (25)	12.389(10)	12.404(8)	10.377(36)
Filing false insurance claims (46)	12.286(11)	12.706(5.5)	11.394(16)
Disclosure info./trade secrets (22)	12.115(12)	11.788(16)	12.393(10)
Sexual harassment on the job (9)	11.965(13)	11.904(15)	12.016(14)
Employee abuse of company benefits (47)	11.955(14)	12.157(13)	11.787(19)
Drug/disease test for employment (19)	11.814(15)	10.462(31)	12.967(4)
Concern activs. contrib. acid rain (13)	11.741(16.5)	11.510(18)	11.934(16)
Use insider info. personal profit (37)	11.741(16.5)	12.314(9)	11.262(25.5)
Use computers for illegal purposes (34)	11.705(18)	12.235(11)	11.262(25.5)
Use capital from unknown sources (50)	11.688(19)	11.392(23)	11.934(16)
Balance responsib. org./stkholders (6)	11.550(20)	10.327(35)	11.656(21)

[1]Text of item truncated to 34 or fewer characters followed by the item number. The complete text of the items is presented in Appendix A.

[2]Ratings and rank order of items for the full sample (n = 113).

[3]Ratings and rank order of items for faculty cohort (n = 52).

[4]Ratings and rank order of items for business practitioner cohort (n = 61).

Table 3
Mean Ratings and Ranks for 10 Lowest Rated Items

Item[1]	Full[2]	Faculty[3]	Business[4]
Use hormones enhance food product (36)	9.482(43)	9.308(45)	9.410(44)
Use genetic engin. increase yield (45)	9.333(44)	8.154(51)	10.373(37)
Govt. sanctions foreign countries (11)	9.161(45)	8.529(50)	9.689(42)
Exploit talent internatl. interest(14)	9.147(46)	9.469(43)	8.883(47)
Standards lower in foreign country (40)	9.107(47)	9.269(46)	8.967(46)
Use advertis. illegal home country (7)	8.768(48)	10.500(30)	7.267(50)
Use of low paid foreign labor (27)	8.495(49)	8.647(48)	8.367(48)
Protect groups equal employ. laws (3)	7.894(50)	8.558(49)	7.328(49)
Genetic testing employmt. purposes (28)	7.860(51)	9.980(39)	6.914(51)
Right employees include child care (4)	6.255(52)	7.420(52)	5.238(52)

[1]Text of item truncated to 34 or fewer characters followed by the item number. The complete text of the items is presented in Appendix A.

[2]Ratings and rank order of items for the full sample (n = 113).

[3]Ratings and rank order of items for faculty cohort (n = 52).

[4]Ratings and rank order of items for business practitioner cohort (n = 61).

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Appendix A
Full Text of Items on the Issues Rating Scale

1. Disposal of solid waste.
2. Generation of nuclear energy.
3. Protection of specified groups by equal employment laws.
4. Rights of employees to include funded childcare, parental leave, elder care leave.
5. Equal pay for comparable jobs--comparable worth.
6. Balance of management's responsibility to both the business organization and to its stockholders.
7. Use in foreign countries of advertising and promotional techniques that are illegal in the home country.
8. Theft by employees of company property.
9. Sexual harassment on the job.
10. Protection of natural resources.
11. Government imposed trade sanctions against foreign countries.
12. Acceptance of bribes or gifts by employees.
13. Concern for industrial activities that contribute to acid rain.
14. Short-term exploitation of local talent by an international interest for long-term company benefits.
15. Disregard of home country trade sanctions in the sale of goods, services, and technology to foreign countries.
16. Possible reverse discriminatory effects of employment quotas.
17. Gathering by businesses of excessive information about clients, customers, or employees.
18. Depletion of the ozone layer.
19. Drug and disease testing for employment purposes.
20. Conflict between customary business behavior of other cultures and limitations of the Foreign Corrupt Practices Act.
21. Illegal copying of registered software--software piracy.
22. Disclosure by employees of corporate information or trade secrets.
23. Use of electronic devices such as hidden microphones and cameras to monitor employee activity on the job.
24. Export of products that do not meet home country safety and/or quality standards.

25. Communication to the public of sensitive information, such as bomb threats made to airlines, possible product contamination, possible health risks resulting from product consumption.
26. Communication by business to the media of true and complete information.
27. Use of low-paid foreign labor.
28. Genetic testing for employment purposes.
29. Removal or withholding of a product from the market due to potential health or safety risks.
30. Failproof quality of products and services provided by business.
31. Restrictions on legal actions against businesses by damaged or dissatisfied consumers.
32. Obligation of employees to give full efforts to job--fair day'swork for fair day's pay.
33. "Creative use" of the legal system by businesses; for example, filing bankruptcy.
34. Use of computers for illegal purposes, i.e. sabotage, unauthorized access, etc.
35. Disposal of hazardous waste.
36. Use of hormones to enhance food production.
37. Use of insider business information for personal profit.
38. Effects of mergers on stockholders, employees, and the public.
39. Effects of organized labor activities on the worker, the business organization, and the public.
40. Operational standards of an international business that are lower in a foreign country than standards required in home country.
41. Pollution of air and water.
42. Fair and complete media coverage of business issues.
43. Use of electronic tracking techniques to monitor computer use by employees (examples: files that were accessed, usage time, number of keystrokes typed, etc.).
44. Influence by businesses on the content of television programs which they sponsor.
45. Use of genetic engineering to increase agricultural crop yield or improve animal production.
46. Filing of overstated or false insurance claims by businesses or their customers.
47. Employee abuse of company benefits, privileges, facilities, etc.
48. Making available to the market products or services that have the potential to save lives or reduce suffering but which will likely be unprofitable from a business standpoint.
49. Rate setting, rate increases and cancellation of coverage by insurance companies.
50. Use of investment capital from unknown or questionable sources--laundering.
51. Honesty in the advertising and labeling of products and services.
52. The issue of company loyalty versus public responsibility--whistle blowing.

Effects of Previous Keyboarding Experience on Student Performance in High School Beginning Keyboarding/Typewriting

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Abstract

Virtually all students who enroll in a beginning keyboarding class in high school will have used typewriter or computer keyboards in the past. However, in the present study, 65 percent of these students had used keyboards either "none at all" or "not more than once a month." Experience with keyboards in the past did not affect either gross words a minute or errors on straight-copy timed tests during the last two weeks of the semester. Keyboard use in the past also did not affect the extent to which students kept eyes off fingers and used correct fingers while they were keyboarding. In this study, 55.9 percent of the students "always or almost always kept eyes off fingers," and another 28.9 percent "kept eyes off fingers about half the time" during the last two weeks of the semester. And 81.4 percent of the students "always or almost always" used correct fingers, while another 15.3 percent used correct fingers "about half the time."

Purpose and Procedures

This study sought to determine whether the nature and type of keyboarding experiences prior to enrolling in a high school beginning keyboarding class had any effect on gross words a minute and errors on straight-copy timed tests and on the extent to which students kept eyes off fingers and used correct fingers while keyboarding.

To facilitate the analysis and interpretation of the data obtained in the study, the subjects were grouped into various classifications reflecting the nature and type of their previous keyboarding experiences. These classifications were obtained by means of a student information form which each student completed for the study. Specific data were collected at the end of Lesson 20 and during the last two weeks of the semester. However, in the interest of saving space, most of the data collected at the end of Lesson 20 and some of the data related to specific student characteristics have been omitted from this paper. The full report of this research study is available for purchase from Dr. Betty Schroeder, Department of Management, Northern Illinois University, DeKalb, Illinois 60115, for a purchase price of $12.

A total of 1,438 high school students participated in the study. These students were from 22 high schools in Northern Illinois; and the teachers in these high schools volunteered to help obtain the data. The schools represented, however, are both large and smalland both suburban and rural. No attempt was made to include "inner city" schools. It is believed that the data obtained are representative of most high schools.

Of the 1,438 students, 711 (49.4 percent) were female and 727 (50.6 percent) were male. Classifications for year in school showed that 608 (42.3 percent) were freshmen, 456 (31.7 percent) were sophomores, 200 (13.9 percent) were juniors, and 174 (12.1 percent) were seniors. If these data are representative of high school beginning keyboarding classes, one can expect that about 75 percent of the students will be freshmen and sophomores.

Type and Nature of Previous Keyboarding Experiences

This section shows the frequencies and percent for students when they were classified by the type and amount of keyboarding experiences they had before enrolling in their present high school class.

Students with Previous Instruction and Amount of the Instruction

Student responses indicated that 456 students (31.8 percent) had received keyboarding/typewriting instruction prior to enrolling in the beginning class in high school, and 979 students (68.2 percent) did not have previous instruction. Of those student with previous instruction, 58.6 percent were female and only 41.4 percent were male. For students without previous instruction, only 45.3 percent were female and 54.7 percent were male.

As one might expect, the amount of previous instruction varied widely.

Amount of previous instruction	Number	Percent
Less than 3 weeks	115	25.1
3, 4, 5, or 6 weeks	127	27.7
7, 8, or 9 weeks	77	16.8
One semester	101	22.1
One year	21	5.0
More than one year	16	3.3

From these data, it can be seen that more than half of the students (52.8 percent) had six weeks or less of instruction. However, 22 percent had one semester. The percentage of students with one year or more of instruction probably is too small to be used for interpretation.

Students also indicated the grade levels at which they had received their previous instruction. Seventy-seven percent had their prior instruction in grades 6, 7, and 8 (14.0%, 36.4% and 26.6% respectively). Whether this same situation will hold in the future is questionable, since keyboarding instruction appears to be increasing in elementary schools.

Most students had their prior instruction at grades 6, 7, and 8, no matter what type of equipment they used for their instruction--except that 20 percent of the students whose prior instruction was on typewriters received that instruction in grade 9. It should be noted, also, that in this study 60.7 percent of the students with previous instruction had received their instruction on computers and only 26 percent had used typewriters for the instruction.

Amount of Keyboard Use in the Past for Students with and without Previous Instruction

The amount of keyboard use in the past differed only slightly for students with and without prior instruction.

Amount of keyboard use in the past	Students with previous instruction No.	%	Students without previous instruction No.	%
None at all	64	14.1	90	9.3
Very little (not more than once a month)	245	54.1	532	54.8
About once or twice a week	72	15.9	194	19.9
Several times a week	47	10.4	96	9.9
Almost every day	25	5.5	59	6.1
Total	453	100.0	971	100.0

It should be noted that only 90 students indicated that they had never used typewriter or computer keyboards at all prior to enrolling in their present high school beginning class. This number is about 6 percent of all students in the study. It should be noted also that a total of 931 students said they had used keyboards "none at all" or "very little (no more than once a month)" in the past, representing 65.3 percent of all students (both with and without prior instruction). The percentage of students in each category of keyboard use was about the same for students with and without previous instruction.

A check was made on whether the amount of keyboard use since previous instruction (for students with prior instruction) was influenced by the type of equipment which students used for their previous instruction. The results were:

Amount of keyboard use since instruction	Typewriter No.	%	Computer No.	%	Both Types No.	%
None at all	11	9.5	49	17.9	4	6.7
Very little (not more once a month)	73	62.9	137	50.2	345	6.7
About once or twice a week	18	15.6	45	16.5	9	15.0
Several times a week	7	6.0	29	10.6	10	16.6
Almost every day	7	6.0	13	4.8	3	6.0
Total	116	100.0	273	100.0	60	100.0

More students used keyboards after their earlier instruction when they had their instruction on both types of equipment; and students who used typewriters for their previous instruction used keyboards (after that first instruction) less than students who had their first instruction on computers or on both types of equipment.

On the information form, students were asked to indicate the type of keyboard equipment they had used in the past--students with previous instruction indicated the equipment used since that instruction, and students without prior instruction indicated the equipment used in the past. The frequencies and percents were:

Typewriters only	114 - 8.7%
Computers only	454- 34.8%
Both types of equipment	736 - 56.5%

Keyboard use appears to be greater when students use both computers and typewriters and much less when students use typewriters alone.

When students with and without previous instruction were classified also by the types of keyboard equipment they had used in the past, the results were:

Types of equipment used	Students with previous instruction No.	%	Students without previous instruction No.	%
Typewriters only	32	7.6	81	9.2
Computers only	136	32.4	316	35.9
Both types of equipment	252	60.0	483	54.9
Total	420	100.0	880	100.0

The types of keyboards used in the past did not differ much for students with and without prior instruction.

Extent to Which Students Kept Eyes Off Fingers

The high school teachers who helped with the study evaluated their students to determine the extent to which they kept their eyes off fingers while keyboarding. This factor was included because the use of keyboards (especially without instruction) might affect the degree to which students become fingers watchers. The following data were obtained by teachers at the end of Lesson 20 and during the last two weeks of the semester.

Extent to which students kept eyes off fingers	End of Lesson 20 No.	%	Last two weeks of semester No.	%
Always or almost always kept eyes off fingers	796	55.8	791	55.9
Kept eyes off fingers about half the time	437	30.6	408	28.9
Never or almost never kept eyes off fingers	194	13.6	215	15.2

The percent of students in each finger-watching category did not change much during the semester, but this phenomenon is not surprising to keyboarding teachers. A further check was made to determine whether having had prior instruction affected the percentages in the three finger-watching categories. The data reported by the teachers during the last two weeks of the semester were:

Extent to which students kept eyes off fingers	Students with previous instruction No.	%	Students without previous instruction No.	%
Always or almost always kept eyes off fingers	261	57.6	533	55.1
Kept eyes off fingers about half the time	134	29.6	300	31.0
Never or almost never kept eyes off fingers	58	12.8	135	13.9
Total	453	100.0	968	100.0

Students with and without previous instruction kept eyes off fingers in about the same proportions during the last two weeks of the semester.

The analysis of data included a check to determine whether the use of keyboards prior to enrollment in the present beginning class affected the extent to which students kept eyes off their fingers. The following data are for students with and without previous instruction, and the data were gathered during the last two weeks of the semester.

For students with previous instruction:

Amount of keyboard use since prior instruction	Extent to which students kept eyes off fingers: Always or almost always No.	%	About half the time No.	%	Never or almost never No.	%
None at all	33	52.4*	22	34.9*	8	12.7*
Very little (not morethan once a month)	146	60.1	65	26.7	32	13.2
About once or twice a week	50	69.9	16	22.2	6	8.4
Several times a week	20	42.6	20	42.6	7	14.8
Almost every day	9	36.0	12	48.0	4	16.0

*Read across rows to obtain 100 percent.

For students without previous instruction:

Amount of keyboard use since prior instruction	Extent to which students kept eyes off fingers: Always or almost always No.	%	About half the time No.	%	Never or almost never No.	%
None at all	43	49.4*	24	27.6*	20	23.0*
Very little (not more than once a month)	285	54.9	162	31.2	72	13.9
About once or twice a week	108	58.4	52	28.1	25	13.5
Several times a week	50	52.1	32	33.3	14	14.6
Almost every day	31	54.4	14	24.6	12	21.0

*Read across rows to obtain 100 percent.

The highest percentage of nonfinger watchers was for students who had used keyboards about once or twice a week--both for students with and without prior instruction. It should be noted, however, that 23 percent of the students without previous instruction and who had not used keyboards at all in the past "never or almost never" kept eyes off

fingers. This percentage was considerably higher than any other classification except for students (without previous instruction) who had used keyboards "almost every day"—and these students probably had used "hunt and peck" on the keyboard.

From the data presented up to this point, it appears that the use of keyboard equipment prior to entering a beginning keyboarding class in high school--no matter how much or how little the amount of keyboard use--had little effect on the extent to which students kept eyes off fingers.

The data obtained from high school students were used to determine the extent to which these students remained in each finger-watching category during the semester of instruction.

Finger-watching categories	Cases at end of 20 class sessions	Same cases at end of semester	% of cases carrying through
Always or almost always kept eyes off fingers	796	662	83.2
Kept eyes off fingers about half the time	437	266	60.9
Never or almost never kept eyes off fingers	194	123	63.4

It is encouraging to note that slightly more than eight out of ten students remained in the "almost always kept eyes off fingers" category throughout the semester. However, it must be noted that a bit more than six out of ten also remained in the "never or almost never kept eyes off fingers" category.

To complete the analysis of data regarding the extent to which students kept eyes off fingers, the investigators used the data to determine the extent to which students changed finger-watching categories during the semester.

At the end of twenty class sessions, 796 students "always or almost always kept their eyes off fingers." During the last two weeks of the semester, 662 of these students (83.3 percent) were in the same category; 82 of them (10.3 percent) had changed to "kept eyes off fingers about half the time"; and 37 (4.6 percent) had changed to "never or almost never kept eyes off finger."

At the end of twenty class sessions, 437 students "kept eyes off fingers about half the time." During the last two weeks of the semester, 266 of them (60.9 percent) were in the same category; 112 of them (25.6 percent) had changed to "always or almost always kept eyes off fingers"; and 55 (12.6 percent) had changed to "never or almost never kept eyes off fingers."

At the end of twenty class sessions, 194 students "never or almost never kept eyes off fingers." During the last two weeks of the semester, 123 of these students (63.4 percent) were in the same category; 13 of them (6.7 percent) had changed to "always or almost always kept eyes off fingers"; and 56 (28.9 percent) had changed to "kept eyes off fingers about half the time."

The evidence in this study indicates that students change "fingers watching" categories during a semester of instruction, and some of them realize a substantial improvement.

Extent to Which Students Used Correct Fingers

One additional factor that was investigated in this study was the extent to which students used correct fingers while keyboarding during the last two weeks of the semester. This factor was included because the use of keyboards (especially without instruction) might cause students to develop habits of using incorrect fingers on the keys. The data for students with and without prior instruction are given below.

Extent to which students used correct fingers	Students with previous instruction No.	%	Students without previous instruction No.	%
Always or almost always used correct fingers	367	81.5	783	82.5
Used correct fingers about half the time	66	14.7	136	14.3
Never or almost never used correct fingers	17	3.8	30	3.2
Total	450	100.0	949	100.0

The percentage of students who always or almost always used correct fingers was so high that further analysis of data concerning this factor seems unnecessary. The use of typewriter or computer keyboards, whether students had prior instruction or not, did not prevent them from learning correct finger usage when they entered a high school beginning keyboarding/typewriting class.

Gross Words a Minute and Errors on Three-Minute Timed Tests During the Last Two Weeks of the Semester

For the three-minute timed tests given during the last two weeks of the semester, students used either typewriters or

computers. The gross words a minute and errors for students using each type of equipment were:

	N	GWAM	Errors
Typewriters with no correction features	385	31.6	8.5
Typewriters with correction features but the features not used during timed tests	661	30.0	8.8
Computers	285	27.2	5.3

The difference of three or four gross words a minute for students using typewriters and those using computers was statistically significant. This difference is large enough to be of some practical significance also. Will grading scales for keyboarding speeds need to be changed from the ones that have been used for students using typewriters?It should be noted, also, that the number of errors is lower for students who used computers, probably because students corrected their errors as they realized the errors occurred. The difference in errors for students using typewriters and those using computers was statistically significant. If students correct errors on straight-copy tests when they use computers, assuming that the computer software does not report the errors even though corrected, is it possible to have a grading standard for accuracy on such tests?

In the following paragraphs, the gross words a minute and errors are given for students classified in various ways.

Students Classified by Gender

In the present study, girls keyed a bit faster than boys during the last two weeks of the semester by about three gross words a minute (31.1 gwam vs. 28.4 gwam). This difference was statistically significant, although it is not of much practical significance. The errors for females and males were 8.2 and 8.1, and the difference was not statistically significant.

Students Classified by Year in School

Sophomores, juniors, and seniors keyed a bit faster during the last two weeks of the semester than freshmen (seniors, 30.9 gwam; juniors, 30.3 gwam; sophomores, 30.5 gwam; and freshmen, 28.7 gwam). The difference in gross words a minute for freshmen and sophomores was statistically significant but, again, of little practical significance.

The errors for students in the different years in school were: seniors, 8.1; juniors, 8.2; sophomores, 9.2; and freshmen, 7.4 The difference in errors for freshmen and sophomores was statistically significant.

Students Classified by Whether They Had Previous Instruction

Students with previous instruction keyed a bit faster during the last two weeks of the semester than those without--about three gross words a minute (31.7 vs. 28.8). This difference was statistically significant. Errors were 8.3 for students with previous instruction and 8.1 for those without, and this difference was not statistically significant.

Students Classified by Amount of Previous Instruction

When students with previous instruction were classified by the amount of their prior instruction, the gross words a minute and errors during the last two weeks of the semester were:

Amount of Previous Instruction	N	GWAM	Errors
Less than 3 weeks	109	31.7	8.9
3, 4, 5, or 6 weeks	122	32.1	8.0
7, 8, or 9 weeks	73	32.9	7.3
One semester	96	30.5	8.5
One year	20	26.2	6.3
More than one year	15	35.7	11.6

The "one year" and "more than one year" groups contain such low frequencies that they probably should not be included in any interpretation of data. When the data were analyzed statistically, Analysis of Variance indicated a significant difference between at least one pair of gross words a minute scores. However, application of the Scheffe test failed to identify the pair or pairs. For practical purposes, the amount of keyboarding instruction for students with previous instruction had no effect on either gross words a minute or errors typed on three-minute timed tests during the last two weeks of the semester. It is worth noting that students who had less than three weeks of previous instruction typed as rapidly as other students by the time they took a three-minute timed test at the end of a semester of instruction in high school.

Students Classified by Amount of Keyboard Use

Students also were classified by the amount of keyboard use since their previous instruction (for students with instruction) and by amount of keyboard use in the past for students without previous instruction. Gross words a minute and errors were recorded for students in each keyboard-use classification during the last two weeks of the semester.

Amount of keyboard use in the past	Students with previous instruction N	GWAM	Errors	Students without previous instruction N	GWAM	Errors
None at all	62	29.6	8.2	81	26.8	7.6
Very little (not more than once a month)	233	32.3	8.4	491	28.7	7.9
About once or twice a week	68	33.2	8.2	180	30.0	9.0
Several times a week	45	29.4	7.6	96	29.0	8.8
Almost every day	24	29.9	6.5	56	29.1	7.9

Using keyboards about once or twice a week prior to enrolling in a high school beginning keyboarding class may give students a slight advantage, but the difference is too small to be of practical significance. The differences in errors for the various classifications were not statistically significant.

Students Classified by Equipment Used for Previous Instruction

Students with previous instruction were classified by the types of equipment they used for their prior instruction to see whether the type of equipment used affected their gross words a minute and errors during the last two weeks of the semester.

Types of equipment used for previous instruction	N	GWAM	Errors
Typewriter only	106	33.4	7.4
Computer only	268	31.2	8.7
Both types of equipment	55	30.4	7.0

Whether students with previous instruction received that instruction on typewriters or on computers made little difference in the speed and errors that they were able to achieve at the end of one semester of instruction in high school. None of the differences were statistically significant.

Students Classified by Types of Equipment Used in the Past

All of the students (both those with and without previous instruction) indicated the types of equipment they had used in the past. Gross words a minute and errors during the last two weeks of the semester for students classified by the types of equipment they had used were:

Type of equipment used in the past by all students	N	GWAM	Errors
Typewriters only	111	29.1	7.0
Computers only	433	29.2	8.6
Both types of equipment	682	30.1	8.2

Gross words minute and number of errors were essentially the same at the end of a semester of instruction for students no matter what type of keyboard equipment they had used in the past.

Students Classified by the Extent to Which They Kept Eyes Off Fingers and Used Correct Fingers

The gross words a minute and number of errors for all students at the end of one semester of instruction when the students were classified by the extent to which they kept eyes off fingers were:

Extent to which students kept eyes off fingers	N	GWAM	Errors
Always or almost always kept eyes off fingers	746	32.2	8.0
Kept eyes off fingers about half the time	410	27.9	8.6
Never or almost never kept eyes off fingers	188	24.2	7.7

At the end of one semester of high school instruction, students who "always or almost always kept eyes off fingers" keyed 8.0 gross words a minute more than students who "never or almost never kept eyes off fingers." This difference was, of course, statistically significant. The difference also was statistically significant for students who "kept eyes off fingers about half the time" (27.9 gwam) and students who "never or almost never kept eyes off fingers" (24.2 gwam). Obviously, finger watchers are markedly slower than those who do not watch, and the accuracy rates are essentially the same. None of the differences in errors was statistically significant.

Students Classified by the Extent to Which They Used Correct Fingers

When students were classified by the extent to which they used correct fingers during the last two weeks of the semester, the gross words a minute and number of errors were:

Extent to which students used correct fingers on keyboard	N	GWAM	Errors
Always or almost always used correct fingers	1,086	30.7	8.5
Used correct fingers about half the time	189	25.7	6.7
Never or almost never used correct fingers	47	22.6	6.1

Students who "always or almost always used correct fingers" keyed about 8 gross words a minute more than those who "never or almost never used correct fingers." This difference was statistically significant. Also, the difference was statistically significant for students who "used correct fingers about half the time" and those who "never or almost never used correct fingers" (25.7 gwam and 22.6 gwam respectively). Likewise, the difference was statistically significant for students who "always or almost always used correct fingers" and those who "used correct fingers about half the time."

The difference in errors was statistically significant for students who "always or almost always used correct fingers" and those who "used correct fingers about half the time," as well as for students who "always or almost always used correct finger" and those who "never or almost never used correct fingers."

Use of correct fingers is important in developing speed of stroking on computer and typewriter keyboards; and correct fingering needs to be stressed in a keyboarding class, even though students may be more accurate when they fail to use correct fingers. The handicap in speed for those who do not use correct fingers will be a serious obstacle to proper skill development.

It should be remembered, however, that 82 percent of the students in this study "always or almost always used correct fingers," and another 14.5 percent "used correct fingers about half the time." Evidently, most students recognize the need to use correct fingers on computer or typewriter keyboards, and most of them succeed in doing so.

Implications for Keyboarding/Typewriting Instruction

Virtually all students who enroll in high school beginning keyboarding/typewriting classes will have had some experience in using keyboards in the past (about 94 percent of the students in this study had used computer or typewriter keyboards before enrolling in a high school beginning class). Thus, the keyboard will not be entirely new to most beginning keyboarding students.

However, in spite of the fact that most students in a beginning class will have past experience with keyboards, about two-thirds of these students probably will have used these keyboards "very little." In the present study, 65.3 percent of the students said they had used keyboards "none at all" or "very little" in the past.

The results of this study indicate that the amount and type of experiences with computer and/or typewriter keyboards prior to enrolling in a high school beginning keyboarding/typewriting class will not affect the gross words a minute at which students use the keyboard, the number of errors that students will make on straight-copy timed test, the extent to which students keep eyes off fingers, and the extent to which students use correct fingers on the keyboard.

Even though prior experience with keyboards did not affect the finger-watching habits in this study, helping students master the technique of keeping eyes off fingers as they use keyboards appears to be extremely important throughout the first semester of instruction. Students actually change finger-watching categories between the end of twenty class sessions and the end of the semester. In this study, 25 percent of the students changed from "kept eyes off fingers about half the time" to "always or almost always kept eyes off fingers." Also, 29 percent who "never or almost never kept eyes off fingers" at the end of twenty class sessions had changed to "kept eyes off fingers about half the time" by the end of the semester; and about 7 percent of the students who "never or almost never kept eyes off fingers" at the end of twenty class sessions had changed to "always or almost always kept eyes off fingers" by the end of the semester.

Students who almost always keep eyes off fingers will have higher gross words a minute than students who keep eyes off fingers about half the time and those who almost never keep eyes off fingers. Also, students who almost always keep eyes off fingers can be expected to have a much higher "gain score" in gross words a minute in a semester of instruction than students who watch their fingers either part or all the time. In addition, there seems to be a long-term accuracy advantage for students who always or almost always keep eyes off fingers. In this study, the students who "always or almost always kept eyes off fingers" made more errors on one-minute timed tests than students who watched their fingers; but, by the end of the semester, students who almost always kept eyes off fingers had reduced their errors markedly and other students had not.

Since virtually all students in this study, regardless of prior keyboard experience or prior instruction, used correct fingers at the end of the semester, teachers need not be greatly concerned about prior experience or prior instruction in regard to using correct fingers. In fact, students who have had keyboard experience in the past (especially those who use keyboards about once or twice a week) may do somewhat better in a beginning keyboard/typewriting class than students who never use a keyboard. However, helping students master the technique of using correct fingers is important, since students who use correct fingers type at a

higher rate and have a higher gain score than those who do not.

Teachers do not need to be concerned about the type of equipment on which previous keyboarding/typewriting instruction is given, since keyboarding speeds and errors, eyes off fingers, and use of correct fingers appear to be unrelated to the type of equipment used for prior instruction.

How and Why Organizations Are Utilizing Desktop Publishing and the Implications for Business Education

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Abstract

In growing numbers, organizations are adopting desktop publishing applications. Market Intelligence Research Co. expects desktop publishing features to be "integrated into most desktop computers and standard application software" (Desktop, 1989, p. 12) by 1992. The researchers conducted a survey of organizations in the Kansas City and St. Louis areas to determine the extent to which they were currently utilizing desktop publishing. The findings would enable educators to make curriculum decisions regarding the types and the extent of desktop publishing skills to present to business students and to assist with hardware and software purchasing decisions.

The survey found that all types of organizations are currently utilizing desktop publishing to produce both external and internal documents. Although a number of software packages are being used, Pagemaker is the most popular. Macintosh and IBM and IBM compatibles are the hardware most often used for desktop publishing applications. The most common training method employed to train workers is either self-taught with manuals or co-worker instruction. The skills perceived to be most important are design/layout, typography/proofreading, and software expertise. It was also found that desktop publishing is used in all functional areas. The conclusion is that students in all business-related majors would benefit from a knowledge of desktop publishing. In designing a desktop publishing unit or course, design, layout, typography, and proofreading instruction should receive more emphasis than keyboarding and text composition instruction.

Introduction

A survey of organizations in the Kansas City and St. Louis area was conducted to answer a series of questions relating to the use of desktop publishing technology. A questionnaire was used to gather data. The purpose of the research was to determine how and why organizations are using desktop publishing (DTP) and to study the implications for business education.

Review of Selected Research

As desktop publishing, the "hot" topic of the 1980s, enters a new, mature phase (Henry, 1989), organizations of all types are including this technology in their operations. Diverse applications in occupational areas such as accounting, law, and public relations seem representative of the continued growth being experienced. Predictions are that organizations will have spent $4.6 billion by 1992 on desktop publishing (Desktop, 1989).

Stutely (1989) advises accounting professionals of the benefits of using a desktop publishing approach to prepare presentation materials. He also points out that Price Waterhouse publications department has been working with Pagemaker around three years producing a multitude of documents from in-house reports to corporate literature.

A recent article in *PC Publishing* ("Desktop Publishing Helps," 1990), reports that Chandler, Arizona, justice court judge David Phares uses desktop publishing to make it easier to understand and convey court information. Phares uses PFS: First Publisher to create various court-related documents such as public information pamphlets, statements of court policy, press releases, and court manuals. A member of the computer faculty at the National Judicial College, Phares holds seminars for the American Bar Association and teaches at the Institute of Court Management. In this capacity, he uses a desktop publisher and a scanner to create court and public education documents as well as handouts and overhead transparencies. The scanning capability enables the judge to create and store a variety of legal forms, including conviction notices with thumbprints as graphics.

A public relations firm in St. Louis reports that it got into the production of publications and materials with DTP because of client demand and lower costs (Gordon, 1989). The projects created in-house tend to be middle-level projects while more sophisticated projects requiring four-color art or graphic design are still produced in the more traditional approach.

Banks are also discovering that desktop publishing systems are effective in producing materials for such areas as mar-

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keting, training and development, economics, and management information (Wentling, 1989). The cost savings realized by producing these materials in-house are significant enough to attract the attention of organizations like the First National Bank of Chicago, which creates and produces reports, proposals, and other materials for "half of what outside vendors charge and also in a shorter period of time" (p. 143).

Building supply home centers are also expanding their computer usage beyond financial activities by using desktop publishing programs to create ads ("Desktop Ads Save," 1989).

Companies including desktop publishing systems in their operations tend to view DTP "as a highly-leveraged, value-added application with a significant impact on the bottom line of business" (Angelo, 1990 p. 35). To be successful in producing documents in-house in the most cost-effective and efficient way, companies must develop strategic guidelines.

A frequently implemented strategy includes the creation of desktop publishing departments. These departments allow companies to work quickly and cost-effectively to achieve consistency in formatting and to perform extensive editing (Holtz, 1989). One example can be found in Compaq Computers' desktop publishing department, Training Production Services. This department was established to centralize the preparation of training materials for three corporate-training departments. Submitting departments forward materials in a word processor format with edited, red-lined instructions for the inclusion of photos and/or other graphics. The desktop publishing department then completes the project using Ventura and Harvard Graphics.

Purpose

The purpose of the study was to determine the factors which influenced an organization to switch to desktop publishing and the types of documents being produced using desktop publishing. An additional purpose was to provide current information on the status of desktop publishing to assist in curriculum development.

Research Questions

The research questions were:

What types of organizations are currently utilizing desktop publishing technology?

What functional areas are responsible for desktop publishing activities?

What hardware and software are being used for desktop publishing applications?

What types of documents/publications are being produced with desktop publishing technology?

What factors influenced organizations to adopt desktop publishing?

What training methods are being used and which are perceived to be most effective in preparing workers for utilizing desktop publishing technology?

What entry-level skills are deemed to be most important for workers who will be utilizing desktop publishing technology?

Procedures and Data Collection

A literature search was first conducted to establish a need for the study. Based on the literature search, a questionnaire was developed and pilot-tested on a select group of companies known to utilize desktop publishing. The revised questionnaire was sent to 520 organizations in the Kansas City and St. Louis metropolitan areas. One hundred and seventeen questionnaires were returned and deemed usable.

A computerized statistical package (SPSS) was used to analyze the data. A comparison of the differences in responses across demographic categories was conducted. Cross tabulation among related categories was also conducted.

Findings

The organizations participating in the study ranged in size from under 100 employees to over 5,000 employees. The majority of the respondents (69 percent) indicated the number of employees to be under 500. No substantial differences were noted for any of the research questions in regard to the size of the organization.

Types of Organizations Using Desktop Publishing

Of the 117 respondents, 66 were currently using desktop publishing, and 11 expect to add desktop publishing capabilities to their organization in the near future.

Table 1 gives a breakdown of the types of organizations which indicated they utilized desktop publishing and the length of time they have utilized the technology.

Although six organizations indicated they have had desktop publishing capabilities over three years, the majority have used desktop publishing between one to three years. Sixteen respondents indicated they have had desktop publishing capabilities less than one year.

Table 1
Length of Time DTP Has Been Utilized

Organization Type	Less Than One Year	One to Three Years	More Than Three Years
Manufacturing	3	11	-
Government/Utility	4	4	1
Health/Medical/ Pharmaceutical	3	5	-
Insurance	-	6	-
Wholesale/Retail Trade	-	5	1
Communication/ Publishing	3	2	2
Financial/Investment/ Banking	2	-	1
Transportation	-	3	-
Agriculture/Mining/ Construction	-	2	-
Services (i.e., accounting, legal)	1	-	1
Engineering	-	2	-
Education/ Consulting	-	2	-
Other	-	2	-

Note: Some respondents indicated more than one organization type, and not all organizations indicated the amount of time DTP has been utilized in their organization.

These findings are consistent with the literature which indicates the sales of desktop publishing units have been growing steadily over the past three years. Hobuss (1989) noted that the number of organizations with desktop publishing systems is expected to grow from the 200,000 units being used in 1989 to 400,000 by 1991 (p. 95).

Functional Areas Using and Responsible for Desktop Publishing Activities

Marketing and graphics were indicated by all organizational types except services as a functional area where desktop publishing is utilized. All types except engineering and education/consulting indicated they used desktop publishing for public relations applications.

The other functional areas indicated as having used or been responsible for desktop publishing activities were personnel, training, information centers, office systems, and data processing.

This diversification of functional areas responsible for desktop publishing activities indicates that students in any business program will benefit from exposure to DTP instruction. While individuals within these functional areas may not be DTP operators, their knowledge of DTP capabilities will enable them to make appropriate decisions when generating written materials within their specific areas.

How Desktop Publishing Is Organized

Respondents were asked to indicate how desktop publishing activities were organized. They were given the choices of centralized, decentralized, or a combination ofcentralized and decentralized. Although a centralized organization format was used most often, decentralized or a combination of centralized and decentralized was almost as popular.

The organizational format was more likely to be centralized if the functional area in charge of desktop publishing was one of the following: graphics, public relations, marketing, or sales. A decentralized format was more likely to occur if the functional area in charge of desktop publishing was data processing, office systems, information center, or personnel. This breakdown is logical in that those areas that are more likely to utilize a decentralized format are areas which provide services across functional areas. Those using the centralized organization format are more specialized.

Types of Hardware Most Often Used for Desktop Publishing Applications

The Macintosh was the most popular hardware used by the organizations utilizing desktop publishing. IBM and IBM compatibles ranked second and third. Table 2 indicates the percentage of organizations using specific hardware.

Table 2
Type of Hardware Used With Desktop Publishing Applications

Type of Hardware	Percentage of Users
Macintosh	35%
IBM	28%
IBM Compatible	23%
Dedicated System	12%
Apple IIc or IIg	8%
Other	11%

Many of the organizations utilizing desktop publishing indicated they used more than one type of hardware. Some with dedicated systems stated that PCs were linked with their dedicated systems.

Software Choice for Desktop Publishing Activities

Pagemaker was the software most often indicated by the respondents as the package used for desktop publishing applications. All organizational types except engineering indicated they use Pagemaker. Both engineering organizations listed Ventura as the software package used for desktop publishing. The five most popular packages were Pagemaker, WordPerfect, Microsoft Word, Ventura, and Adobe Illustrator. Others listed by at least two respondents included Excel, Quark XPress, Full Paint, and Aldus Freehand.

Types of Documents Produced Using Desktop Publishing

Both external (those materials prepared primarily for an external audience) and internal (materials prepared primarily for an internal audience) documents were produced using desktop publishing. The most common documents produced with DTP included brochures, newsletters, in-house reports, public relations materials, promotional materials, external reports, and training materials. The respondents indicated that many of the documents now created in-house through desktop publishing had previously been produced in another fashion such as with word processing equipment or by a professional printer. Newsletters, in-house reports, and external reports were the documents most frequently listed as those which were previously created using a method other than desktop publishing and were now produced in-house with DTP.

Factors Influencing the Use of Desktop Publishing

Respondents, who were now using DTP, indicated that 52 percent of their external materials and 60 percent of their internal materials had been created previously using methods other than desktop publishing. Table 3 summarizes the reasons for switching to desktop publishing.

Table 3
Ranking of Factors for Using In-House Desktop Publishing by Degree of Importance

Factor	Ranking		
	Important	A Consideration	Minor Importance
Reduced Turnaround Time	55	11	01
Increased Control Over Document	48	10	08
Improved Quality	44	18	04
Lowered Cost	46	10	10
Protection of Sensitive Material	20	14	32

Note: Not all respondents addressed each factor.

Once the organizations had desktop publishing capabilities, they began creating additional documents. Thirty-nine percent of the respondents indicated that they were creating new external documents while 33 percent indicated they were creating new internal documents.

Actual Training Methods Used and Those Perceived as Most Effective

Respondents were asked to indicate how their desktop publishing operator/user received training and what training methods they perceived as most effective. Multiple answers were permitted. Because desktop publishing is a relatively new phenomenon and the number of individuals trained to work with desktop publishing is relatively small, it was not surprising to learn that the top two on-site training methods used were the self-taught method (using manuals or texts) and co-worker/supervisor-supplied instruction.

Other on-site training methods included formal training sessions conducted by vendors or other trainers. One respondent indicated that a video tutor program was available.

Off-site training methods used (in order of preference) were attendance at professional seminars; vendor-supplied training sessions; college courses; and educational classes offered at local computer stores, vocational centers, or high school adult education programs.

When asked about the training methods perceived as most effective, respondents' answers changed very little, except in two categories. On-site training acquired by the self-taught method using texts or manuals was perceived as most effective by 30 respondents as compared with 54 who actually used this method. In addition, off-site training acquired through professional seminars was perceived as most effective by 19 respondents as compared with 26 respondents who actually used this method. Off-site training supplied by users groups was also mentioned as an effective training method. Table 4 presents a comparison of training methods actually used and those perceived as most effective.

Table 4
A Comparison of Training Methods Actually Used With Those Perceived as Most Effective

On-Site Training Method	Actual Method Used	Method Perceived As Most Effective
Self-taught using manuals or texts	54	30
Co-worker or supervisor-supplied instruction	33	31
Vendor-supplied training	22	20
Formal in-house training	5	–
Other	8	–
Off-Site Training Method		
Professional seminars	26	19
Vendor training sessions	19	23
College courses	17	15
Computer store educational classes	11	8
High school adult education and vocational courses	5	5

Note: Respondents were encouraged to check all answers that applied. In some organizations, more than one method of training is in actual use.

Most Important Skills for Employees

Respondents were asked to rank the skills they perceived to be most important for employees working with desktop publishing technology.

Table 5 shows that 55 respondents considered design/layout and typography/proofreading skills as crucial/important for employees utilizing desktop publishing. Following closely behind was software expertise which was ranked by 52 respondents as crucial/important.

While only 14 respondents perceived keyboarding skills as crucial, 47 listed it as important/useful. Interestingly, while two skill categories (editorial ability and text composition) were perceived as not very useful by five respondents, keyboarding was the only skill that received a rating of unnecessary.

The importance attached to design/layout and typography/proofreading skills could be explained in part by the fact that components (elements) of a DTP document can be entered electronically through scanning devices. In addition, text is often imported from word processing packages and arranged by the DTP operator. Further, many of the operations required for final output can be manipulated using point-and-click selection with the mouse.

Summary and Conclusion

Desktop publishing is being used in all types of organizations. The functional areas responsible for desktop publishing activities include marketing, graphics, public relations, personnel, training, information centers, office systems, and data processing. This indicates that a knowledge of desktop publishing is not limited to any one academic area. The most popular hardware is Macintosh followed closely by IBM and IBM compatibles. Pagemaker is the most widely used desktop publishing software package although a number of other packages are being utilized.

Both internal and external documents are prepared using desktop publishing. The most important factors regarding the use of desktop publishing for document production are reduced turnaround time, increased control over document, improved quality, and lower cost.

Regarding desktop publishing training, the most popular training methods are self-taught with manuals followed by co-worker instruction. Business students would benefit from some instruction in desktop publishing while in college as they are likely to encounter desktop publishing on the job but will find limited in-house training. Those employees directly involved in desktop publishing will find the following skills to be most important: design/layout, typography/proofreading, software expertise, editorial ability, keyboarding, and text composition. Those skills are listed in order of importance which indicates that instruction in design/layout and typography/proofreading will be more beneficial than keyboarding or composition.

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Table 5
Desktop Publishing Skills Perceived as Important

Skill	Crucial	Important	Useful	Not Very Useful	Unnecessary
Design/layout	27	28	9	1	0
Typography/proofreading	25	30	6	4	0
Software expertise	22	30	12	1	0
Editorial ability	19	22	19	5	0
Keyboarding	14	25	22	1	2
Text composition	13	30	17	5	0

Other factors cited as important were initiative, interpersonal skills, cooperativeness (sic), ability and willingness to learn, and hardware expertise.

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Integrating Academic Content into Business Education: Results from Research in Illinois

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Abstract

Faculty at Illinois State University and University of Illinois collaborated to pilot test and evaluate Applied Academics curricula in Illinois. The researchers collected data on the impact of Applied Communications and Applied Mathematics curricuola on students and programs. In addition, they assessed, through case studies, procedures, and guidelines that educators can follow to cause academic and vocational education teachers to work cooperatively.

Data revealed several positive aspects of the Applied Academics curricula that would support the use of these materials in business education classes. Data also indicated drawbacks, concerns, and key processes to consider when using these materials, as well as how to facilitate collaboration between academic and vocational teachers.

Introduction

Demands for school reform have been based on the popular view that schools should be held accountable for their failure in teaching students the basics as noted by Bennett and McLaughlin (1988), Harris (1988), Lockhead (1988) and others. In response to this challenge, state and local school boards have initiated a number of reform measures, such as raising teacher certification standards, increasing the number of traditional academic courses for graduation, modifying textbook adoption procedures, and lengthening the school day or school year. These measures are all concerned primarily with educational organization or policy matters.

Clune, White, and Patterson, (1989) perceived from their research of the reform efforts that high school graduation course requirements were the most likely to achieve the general objective of developing a more rigorous academic education. The results of their study found that the math and science courses which were added in response to state high school graduation requirements were mostly at the basic, general, or remedial levels. They also concluded that, because of these increased course requirements, the number of vocational courses that were offered declined. However, consistent with the principle of seeking integration of academic and vocational instruction, a more logical and promising approach to reform is to consider the holistic nature and possibilities within secondary schools.

The Carl D. Perkins Vocational Education Act of 1984, and the Carl D. Perkins Vocational and Applied Technology Act of 1990 have emphasized the need for strengthening the academic foundations of vocational education. These Acts are but one initiative among many representing a movement to bridge the existing gap between academic and vocational programs. Recent literature is rich with suggested approaches to improving the basic skills of individuals as they prepare to enter the work force. Weir (1987), Parkhurst (1986), Barton (1986), Finch and Crunkilton (1985), the National Center on Education and the Economy (1990) have concluded that the modern economy requires a different labor force than is currently being prepared. The new labor force will be required to adapt to varied patterns of work, to take initiative and make decisions, to possibly have a part in running their companies, and to help establish management policies.

An article appearing in the New York Times (1988), noted that, "Concerns of the business community for a skilled work force have never been greater than in the 1980s." The article also pointed out that the problem is twofold. The jobs themselves require greater reading, writing, and mathematical skills, but the process of retraining requires a higher level of these basic skills. Schmidt (1988) concluded from her research on the use of database software documentation manuals that vocational students would have a difficult time using and understanding technical manuals which are used in many of today's occupations. A recent joint publication

of the U.S. Department of Education and the U.S. Department of Labor (1988) reports research findings which indicate that the kinds of reading, writing, and analytical tasks that workers routinely perform on the job are different from those which students are taught in schools or in general adult literacy programs. Additionally, U.S. News & World Report (June 16, 1989) stated that in 1965, a car mechanic needed to understand 5,000 pages of service manuals to repair any automobile on the road; today, that same mechanic must be able to synthesize 465,000 pages of technical text. Since the application of basic skills on the job is embedded in real job tasks, education and training programs must move toward using traditional school-based approaches. Further, the report argues that such programs also hold out promise for helping employees and future employees in developing their analytical reasoning abilities, thus enabling them to more readily transfer their experience from one job to another. Resnick (1987) discussed this disconnection between in-school and out-of-school learning during her 1987 AERA Presidential Address when she stated that, "there is growing evidence that not only may schooling not contribute in a direct and obvious way to performance outside school, but also that knowledge acquired outside school is not always used to support in-school learning."

To assure that students can adapt to the ever-changing nature of society and the work place, curriculum revitalization efforts in vocational education must address these needs. It is imperative that secondary and postsecondary vocational programs and services share in meeting the fundamental responsibilities of public education to (a) assure that all students, whether youth or adult, attain appropriate levels of achievement in areas fundamental to their continuing development; and to (b) assure that all students attain a satisfactory level of achievement appropriate to either immediate employment or advanced education in preparation for later employment.

Model for Integrating Academic and Vocational Education

Barton (1986) and Lotto (1988) in their review of the research on vocational education both determined that vocational education needs to do much more in integrating its curricula with general education. In the past, vocational education has developed its programs in isolation from general education and has tended to concentrate on teaching occupational specific tasks. Lotto (1988) concluded from her research that students generally enrolled in vocational education because they liked it and they rated it near the bottom in difficulty. Vocational education was not emphasizing basic academic skills as noted by Lotto:

> Employers are generally positive toward vocational education as a provider of specific occupational skills. They are not well satisfied with the basic skill proficiencies and general trainability of young workers in occupations not requiring a four-year degree. (p. 17)

It was from research and reports similar to these that spurred state agencies and other leaders in vocational education to seek out and develop models to enhance the teaching of basic academic skills (Pritz, 1988; Grubb and Plihal, 1990; Benson, 1989; Owens and Linder, 1989; and Southern Regional Education Board, 1989, 1990). Inherent within most models being pursued by educational agencies to integrate basic academic skills into vocational education is curriculum development or modification.

Since states have the major constitutional responsibility for providing public education in the U.S., curriculum development and innovation are often spearheaded by state departments of education. Interstate curricula consortia have been prominent in vocational education for several years (e.g. Vocational Technical Education Consortium of States, National Network Curriculum Coordination in Vocational and Technical Education). Another such effort is the consortium of 46 state and provincial vocational education agencies which comprise the Agency for Instructional Technology (AIT), a private, non-profit organization in Bloomington, Indiana. AIT was established in 1973 to strengthen education through technology and is governed by a Board of Directors representing American-Canadian education. One other nonprofit public service organization which operates through a consortium of state agencies is the Center for Occupational Research and Development (CORD) located at Waco, Texas. Since its inception, CORD has developed curricula for new and emerging technologies.

During the mid 1980s AIT and CORD pursued the development of applied academic materials for secondary and postsecondary vocational students. Their first notable effort in this area of vocational education was the development of Principles of Technology (PT) curriculum materials. The PT effort was funded by a consortium of 35 states and provincial vocational education agencies contracted jointly with AIT and CORD to develop a set of applied physics curriculum materials. The development of PT began in 1984 with a consortium investment of about three million dollars. PT was completed and available for consortium members to begin implementing in 1986. In general, federal vocational funds were used by the consortium members to purchase these materials. The PT materials were given top ratings for "technical physics" by the American Association for the Advancement of Science in the 1988 March/April issue of Science Books and Film. For a thorough discussion of the development of PT, readers should review the document titled, *Design and Assessment of a Formative Evaluation of the Principles of Technology Curriculum Materials*, 1986, conducted by the National Center for Research in Vocational Education when it was operated by The Ohio State University.

The genesis of the idea to develop Applied Communications and Applied Mathematics materials by and large resulted from the development and implementation of Principles of Technology. Beginning in April, 1985, discussions by state directors of vocational education with representatives of AIT and CORD clearly indicated that additional curriculum materials in applied communication and mathematics were high priorities. AIT elected to develop a prospectus for a course in applied communication (Agency for Instructional Technology, 1986). CORD committed to develop a one-year set of materials in applied mathematics (Center for Occupational Research and Development, 1989).

Applied Communications is a set of competency-based learning materials designed to help students develop and refine job-related communication skills. The learning materials are divided into 15 instructional modules, each of which contains 10 lessons and two video programs. The modules can be used individually or all 15 modules can be used in sequential order as the basis for a year long course. Any of the modules or lessons can also be integrated into vocational education and academic courses where appropriate. The format of each curriculum module consists of a teacher's guide, transparencies, videos, and a student work text. While Applied Communications was developed primarily for high school students, it has been pilot tested in postsecondary and adult programs.

Similarly, CORD developed Applied Mathematics materials. The mathematics content in Applied Mathematics focuses on arithmetic operations, problem-solving techniques, estimation of answers, measurement skills, geometry, data handling, simple statistics, and the use of algebraic formulas to solve problems. The curricula emphasizes the ability to understand and apply functional mathematics to solve problems in work settings. The material is presented in 25 units with each unit divided into six activity sessions. Applied Mathematics follows the applications approach to learning which is used in the Principles of Technology and Applied Communication materials.

The adoption and use of the AIT and CORD developed materials is currently being referred to as "one model of integration" available to educators as they search for ways to enhance the basic academic skills of their students. This is due, in part, to the broad-based appeal these applied materials have experienced among administrators, vocational teachers, academic teachers, and counselors throughout their developmental stages as reported in their formative evaluation studies. Also, the popularity of this "model" is shown by the fact that three more similar efforts are currently in various stages of development; Applied Biology/Chemistry by CORD, Applied Mathematics II by CORD, and Workplace Readiness: Education for Employment, Personal Behavior, Group Effectiveness, and Problem-Solving Skills for a Changing Work place by AIT.

Purpose of Study and Research Questions

Grubb and Plihal (1990) have indicated in their anecdotal research of integration activities across the country, that the concept of integrating academics into vocational education can take many forms and use a variety of strategies. They continue to site the nebulousness of the concept of integration and that there is no single best model. However, one of the more concrete methods of integrating academic with vocational subject matter is through the use of Applied Academic curriculum materials.

With this backdrop, this collaborative research project had the purpose of: (a) pilot testing, Applied Academics curriculum materials to provide an opportunity to collect data to assist in the determination of the effectiveness of this method of integrating academics; (b) to better understand the role of teacher collaboration in integrating academics into vocational subjects, as well as infusing applied learning activities into academic courses; (c) to identify components and processes which are critical to the integration of academic and vocational education; and (d) to identify potential component parts of a proposed teacher/administrator guidebook regarding the integration of academic and vocational education.

From this backdrop the following research objectives were developed:

1. What were the pilot site teachers' perceptions concerning the impact of the Applied Academics materials on student achievement as compared to traditional approaches?

2. How did pilot site teachers use Applied Academics materials in their courses?

3. What were the pilot site teachers' perceptions concerning the advantages and disadvantages of the Applied Academics materials as compared to traditional curricula?

4. What were the pilot site teachers' perceptions of the benefits and disadvantages of collaborative activities?

5. What were the pilot site teachers' insights concerning a broad planning model for integrating academic and vocational subjects, including barriers and key considerations for implementing such a model?

6. What were the pilot site teachers' insights concerning the component parts of a teacher/administrator guidebook on integrating academics?

Nature of Research Endeavor and Methodology

This research effort was accomplished through a collaborative and symbiotic relationship between the Applied Academics project at Illinois State University funded by the Illinois State Board of Education Department of Adult, Vocational, and Technical Education, and the Applied Basics Curricula in Vocational Education: Validation of Student and Program Outcomes project at the University of Illinois, funded by the National Center for Research in Vocational Education. Project staff from both projects met periodically to plan, organize, direct, and evaluate project objectives and activities. Project staff at Illinois State University coordinated three different sets of pilot sites, delivered in-service training, and directed workshops. Project staff at the University of Illinois were most directly involved with the designing of survey and assessment instruments to collect data.

One set of pilot sites included fourteen different local education agencies from across Illinois which pilot tested Applied Communications, and/or Applied Mathematics curricula. These pilot sites were scattered from around the state of Illinois including rural, small town, and urban areas, and ranging from small high schools to comprehensive high schools to area vocational centers. Academic and Vocational teachers participated.

The second set of pilot sites were organized from across Illinois and included vocational education teachers across all vocational areas. The vocational teachers involved from this second set of pilot sites had the assignment of keeping journals of their efforts to collaborate with academic teachers to strengthen either the academic content of their vocational courses or to improve the applied nature of the academic teachers' courses. These instructors were prepared for this activity through a workshop in September, 1989 and were reconvened at additional dates to review their activities, and journal entries. Finally, this group of instructors prepared a collaborative presentation for the Illinois Vocational Association Annual Conference in February of 1990. These teachers were identified by the Illinois State Board of Education Department of Adult, Vocational, and Technical Education staff.

A third set of pilot site teachers were utilized to identify the barriers and incentives for teachers to be involved with collaborative activities. These teachers entered into collaborative activities and kept journals. These instructors also reviewed a potential strategic planning model for use in planning integration activities and the potential content of a teacher/administrator integration guidebook. These pilot site teachers were from the McLean-DeWitt Regional Vocational System and included academic and vocational instructors and administrators. These individuals were all volunteers.

Pilot Sites for Applied Curricula

Three meetings were held between the staff of the two projects to work out the details and make the pilot test site selections. Fourteen different local agencies were involved in the Illinois pilot testing of Applied Communications and/or Applied Mathematics. One of the sites is a postsecondary institution, one is an area vocational center, one is a magnet high school, the remaining are comprehensive high schools.

During July and August, 1989, the pilot site administrators were contacted and site visits were made to each institution to orient and train all the professional staff who would be involved in using these materials in the vocational and/or academic program areas. Applied Communication and Applied Mathematics materials were disseminated to the participants and information was secured on the classes where the materials would be used. The participants were given an overview of the projects' expectations. Visitation schedules were discussed and arrangements were made to hold two in-service/evaluation workshops during the academic school year.

Through a review of related literature and contacts with other researchers involved in applied academics evaluation, sample evaluation survey forms were prepared and printed. To promote cooperation and coordination of data, contacts were made with: Norton Grubb and Jane Plihal, National Center for Research in Vocational Education, Berkeley, California; Thomas Owens, Northwest Regional Educational Laboratory, Portland, Oregon; Gene Bottoms, Southern Regional Educational Board; and David Payne, Educational Research Laboratory, Athens, Georgia.

Sample survey forms from these and other projects and activities were reviewed for data items and procedures. The project staff, in turn, designed survey/data collection instruments which were pilot tested. The instruments developed to collect demographic data on students, teachers, and school districts; information concerning participant expectations and outcomes; educational background of students, teachers and administrators are as follows:

1. Administrator Questionnaire Survey Form
2. Teacher Questionnaire Survey Form
3. Student Questionnaire Survey Form

These questionnaires were to be disseminated and completed sometime between December, 1989, and February, 1990. The teacher questionnaire data were collected at the Applied Academics Workshop, December 11, 1989, at Illinois State University in Normal, Illinois. Data were collected from 25 teachers at the workshop. The student questionnaire booklets were disseminated to the participants at the December workshop and were to be completed by February, 1990. These forms were collected by the project staff during the on-site visitations.

Vocational Education Teacher Collaborative Pilot Sites

Project staff, with the assistance of the management staff of the Illinois State Board of Education Department of Adult, Vocational, and Technical Education, selected ten vocational instructors to seek out and collaborate with academic teachers to improve the academic content of their vocational courses and to improve the applied learning strategies in the academic teachers' courses.

These teachers were identified and solicited during August and September, 1989. They attended an in-service workshop on integration in Champaign, Illinois on September 23, 1989 with instructions to keep a journal of their collaborative interactions with academic teachers. They reconvened in November, 1989 and January, 1990 to discuss preliminary findings and to frame a collaborative presentation to be delivered at the Illinois Vocational Association Annual Conference in Itasca, Illinois. Results from their activities provided insight into benefits and barriers from collaborative integration efforts.

Academic and Vocational Teacher Pilot Sites

Through an initiative by project staff and the regional system director for the McLean-DeWitt Regional Vocational System, volunteer academic and vocational instructors in the region were identified and contacted in August and September, 1989 for their participation to collaborate with other teachers and to keep journal accounts of their activities.

Project staff met once a month with each of the teachers/administrators to discuss collaborative activities related to teaching methods, curriculum content, course development, and incentives and barriers to collaborative activities. These informal contacts between project staff and pilot site teachers continued through May, 1990. On June 4, 1990 pilot site teachers attended a summit meeting at Illinois State University to synthesize their reactions to their activities throughout the year, to review potential strategic planning models for integration, and analyze the components of a proposed teacher/administrator guidebook for curriculum integration.

Findings and Conclusions

Applied Curricula Pilot Sites

This report contains information from the teachers implementing Applied Academics curriculum, including both vocational and academic teachers. The following paragraphs and Tables 1 through 7 are intended to present a brief summary of the type of data collected. A more in-depth analysis is currently under way and includes a cross-correlation between teacher responses and their background data and between student responses and their demographic data. It should be noted that the totals may not add to 100% due to those who did not respond to specific items.

Due to the nature of the selection of pilot sites, the results should not be construed as being generalizable or representative of all schools, students or programs. Teachers were selected on a competitive basis because of the strong demand to participate as a piolt site. This was the result of some positive reports concerning the Applied Academics materials. The researchers are continuing to analyze data, some of which are not yet available. Data collection instruments are being improved and expanded. Your comments and suggestions are welcomed by the researchers.

Table 1 and 2 describe the characteristics of the teachers participating in the pilot program to implement the Applied Academics materials. The data indicate, that the sample is an experienced group of teachers in high schools located in diverse communities and various types of school organizational structures. Based on the teacher's responses, it has been estimated that 726 students were enrolled in the Applied Academics courses. These students were spread across grades nine through twelve, with an average of 16 students per class. Some of the teachers participating in the program were teaching the Applied Academics materials in more than one class at the time. As Table 3 indicates, half of the students have been described by their instructors as "average students" and a majority of the students (64%) reported to have enjoyed the Applied Academics instructional approach.

Table 1
Instructor Demographics

Educational Background		Professional Certificate	
Associate degree	4%	Provisional	4%
Bachelor's degree	21%	Annual	16%
Master's degree	50%	Continuing	64%
Associate & Bachelor's	4%	None	4%
Associate & Master's	13%		
Master's and Specialist	8%		
Years Teaching		**Type of Community**	
Two to five years	16%	Rural	32%
Six to ten years	12%	Small town	44%
Eleven to twenty years	52%	Suburban	4%
More than twenty years	20%	Urban	16%
Type of School		**Staff Development Programs Attended**	
Comprehensive high school	64%	State, Regional, and Local	60%
Area Vocational School	12%	All of the above and National	8%
Vocational wing of a comprehensive H.S.	4%	Other	16%
Other (correctional inst., magnet school)	20%		

Table 2
Instructor Demographics

Member of a Professional or Teacher Organization		Frequency of Reading Journals Reporting Current Research	
Yes	72%	Occasionally	56%
No	28%	Frequently	28%
		Seldom	4%
		Never	8%
Experience with an Occupation Other than Teaching		Taught Mathematics Classes	
Yes	76%	Yes	44%
No	20%	No	56%
Taught English, Communications or Language Arts Classes		Taught Science Classes	
Yes	24%	Yes	24%
No	76%	No	76%
Taught Vocational Education or Training Classes		Experience Teaching Vocational Classes	
Yes	76%	1 - 5 years	26%
No	24%	6 - 10 years	5%
		11 - 20 years	38%
		20 years or more	26%

Table 3
Student Demographics

Total Number of Students = 726
Students/Class Average = 16

Grade Level		Ability Level of Students	
9th Grade	10%	Gifted	3%
10th Grade	26%	Above average	11%
11th Grade	26%	Average	50%
12th Grade	33%	Below Average	26%
Other (post-secondary, correctional center)	5%	Marginally learning disadvantaged	10%
Did your students seem to enjoy the Applied Materials used?		Sex	
Yes, a lot	24%	Male	59%
Yes, somewhat	64%	Female	41%
No, not too much	4%		
No, not at all	4%		

How many students are in each of the classes in which you are using the Applied Basics Materials?

5 - 10 students per class	16%
11 - 15 students per class	24%
16 - 20 students per class	28%
21 - 30 students per class	28%

The data in Table 4 addresses research question 1. Almost all the teachers (92%) agreed that the Applied Academics materials reflect an increased emphasis on applied learning, while helping the students improve their academic achievement. Four out of five teachers agreed that the Applied Academics materials are effective because they help students understand the subject matter.

Table 4
Selected Items that Address Research Question 1

Do you feel that the Applied Academics materials help students improve their academic achievement?	
A great deal	16%
A fair amount	68%
Not too much	4%
Not at all	0%
How was the overall impact in terms of instructional effectiveness when using the Applied Academics materials?	
Excellent	8%
Good	68%
Acceptable	16%
Poor	0%
Do you feel that the Applied Academics materials reflect an increased emphasis on applied learning?	
Yes	92%
No	0%
Do you feel that the Applied Academics materials are effective because they help students understand the subject matter?	
A great deal	36%
A fair amount	52%
Not too much	0%
Not at all	0%

Answers to research question 2 are highlighted in Table 5. The majority of teachers (64%) indicated that the materials were being implemented in a vocational program, and nearly half (44%) indicated that this was their first time using the Applied Academics approach in their courses.

Table 5
Selected Items that Address Research Questions 2 & 5

Prior to this year, how extensively have you used an Applied Academics approach in your courses?	
Often	36%
Seldom	20%
Never	44%

In what type of course are you currently using the Applied Academics materials?	
A new course	16%
An existing course	76%
Both new and existing	8%

In what type of program are you implementing the Applied Academics materials?	
Vocational	64%
Mathematics	28%
Language Arts/Communication	8%

Were the Applied Academics materials the primary materials used in an existing course?	
Yes	14%
No	86%

The data in Table 6 provides some insight into research question 3. Two aspects of Table 6 are particularly interesting. First, the majority of teachers (80%) indicated that the Applied Academics materials have promoted academic/vocational collaboration, with 56% of respondents in favor of academic/vocational team teaching of the courses. Second, nearly half the teachers (44%) indicated that the Applied Academics materials have induced them to incorporate some new techniques into their teaching.

Table 6
Selected Items that Address Research Questions 3 & 6

Based on your experience, what kind of teachers do you think should teach the Applied Academics course?	
Academic teachers	8%
Vocational teachers	24%
Academic/vocational team teaching	56%

Have the Applied Academics had a positive effect on your classroom performance?	
Strongly agree	20%
Agree	60%
Disagree	12%
Strongly disagree	0%

Based on your experience with the Applied Academics materials, would you recommend it to other teachers?	
Yes, I would highly recommend it	40%
Yes, I would recommend it	36%
Not sure	24%
No, I would not recommend it	0%

Do you feel that the Applied Academics materials promote academic/vocational collaboration?	
Yes	80%
No	12%

How was the overall impact in terms of manageability when using the Applied Academics materials?	
Excellent	16%
Good	44%
Acceptable	28%
Poor	4%

Have the Applied Academics materials caused you incorporate some new techniques into your teaching?	
Strongly agree	36%
Agree	44%
Disagree	12%
Strongly disagree	0%

How well do the Applied Academics materials meet their intended objective* compared to other approaches you have tried before?	
Academic teachers	8%
Vocational teachers	24%
Academic/vocational team teaching	56%

*i.e. stimulate critical thinking and develop problem-solving skills

Table 7 addresses the students' interest in the course and their perceptions of the emphasis placed on basic academic skills. Students indicated that their was an increased emphasis on academic skills because of the use of the materials. Also, the students strongly (68%) indicated that the materials had a positive impact on their interest in the content. In addition, more than half the students (56%) completing this course received academic credit.

Table 7
Students Interest and Type of Credit Received

How was the overall impact in terms of student interest when using the Applied Academics materials?		Do you feel that the Applied Academics materials reflect an increased emphasis on higher academic expectations for Vocational students?	
Excellent	12%	Yes	80%
Good	56%	No	12%
Acceptable	16%		
Poor	8%		

Did the students completing this course receive vocational credit or academic credit?	
Vocational credit	36%
Academic credit	56%

Data included in Table 8 were obtained from meetings with Applied Academics materials pilot site teachers. Interestingly, teachers collectively spoke of the common advantages and disadvantages of using the Applied Academics curricula, addressing research question 3, but they also voiced differences of opinion based almost exclusively on specific characteristics or needs of their instructional settings and students.

Table 8
Teacher Perceptions of the Advantages and Disadvantages of Utilizing Applied Communications and Applied Mathematics Materials

1. The materials worked well when adapted to existing courses.
2. They provided an excellent connection between work and school.
3. Teachers needed extra planning time to implement the materials.
4. Applied Communications had several disadvantages as a stand-alone course, while Applied Mathematics didn't.
5. Video programs stimulated excellent discussion activities.
6. Many related activities needed modification to fit local needs.
7. Materials could not be utilized "as is", they needed to be adapted.
8. There needed to be a coordinated effort locally so students did not repeat modules in different classes.
9. The materials worked well with cooperative education classes.
10. The materials needed more work scenes and exercises.
11. Teachers saw an improvement in students' math scores.
12. The reading level of some materials was a concern.
13. The materials facilitated academic-vocational collaboration.

Second and Third Pilot Site Teachers' Findings

Data included in Table 9 addressed research question No. 4. Pilot site instructors from pilot sites two and three indicated that time constraints and a clear mission were the two most important barriers to effective collaboration between academic and vocational teachers. Two other major concerns for these teachers were the turf battles between departments and disciplines, and dealing with local bureaucracy related to standards for admission into higher education and teacher certification.

On the positive side, these pilot site teachers indicated quite clearly that through collaboration with professionals across disciplines, they acquired assistance, money, contacts with other individuals, and resources which helped them with their instructional programs. They also indicated that this helped them develop professionally and develop students' interests, achievement, concept of what lies outside of the school, and the need for academic preparation, as well as vocational skills.

Table 9
Summit Report

The barriers that impede collaboration and integration that the teachers identified were:
* local bureaucracy in relation to certification
* state initiatives
* teacher certification
* admission into higher education
* scheduling students and teachers
* competition between departments and disciplines
* time to plan, meet, and work
* the stigma attached to vocational education
* communication problems
* dollar support for new programs
* the risks/rewards for attempting new initiatives
* personal philosophies
* culture
* parents lack of understanding and involvement
* assessment
* clear mission and direction

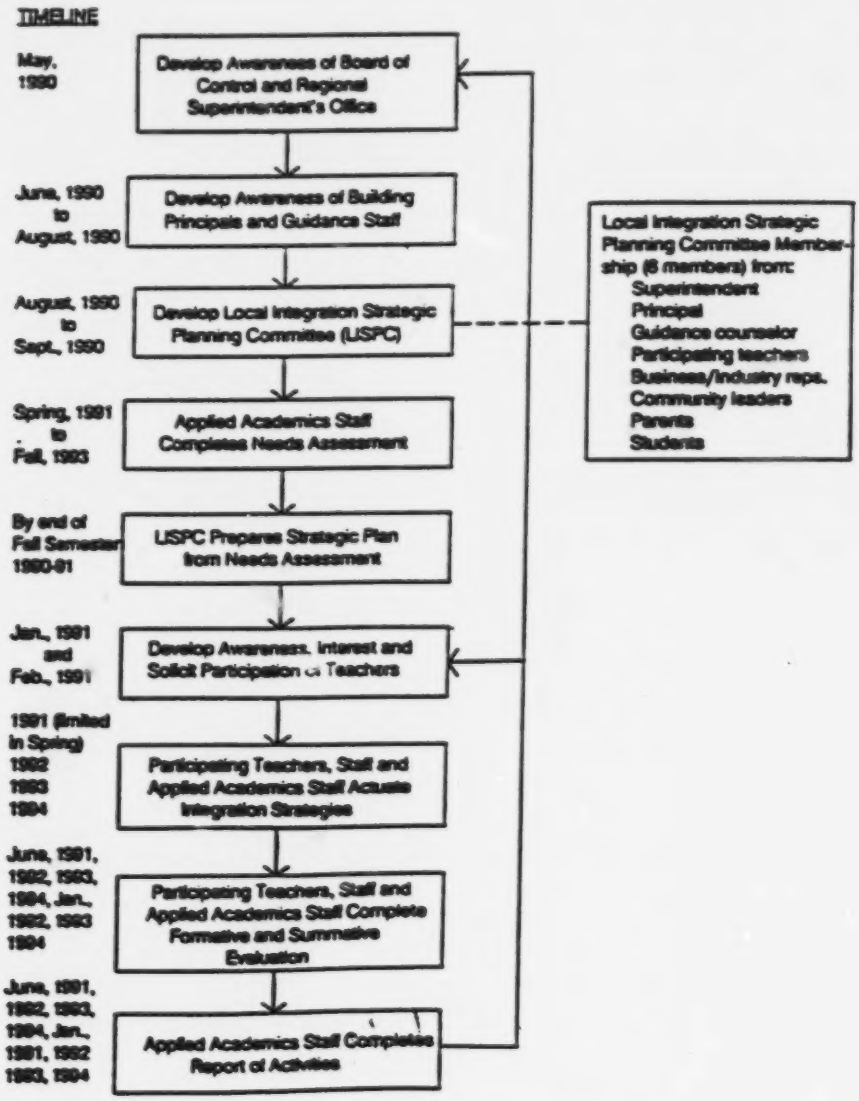
The top five barriers identified, in rank order were:
1. time to plan, meet, and work
2. clear mission and direction
3. competition between departments and disciplines
4. local bureaucracy in relation to certification
5. admission into higher education

Incentives that facilitate collaboration and integration that the teachers identified were:
* survival
* adding new life to old programs
* the urgency for improvement in education
* the support of democratic education principles
* professional development opportunities and recognition
* self fulfillment
* being a part of an innovative, winning group
* developing a diversity of students in all classes
* acquiring assistance, i.e. dollar support, technical assistance, and resources
* developing students' interests, achievement, and relevant learning

The top five incentives, in rank order were:
1. acquiring assistance, i.e. dollar support, technical assistance, and resources
2. developing students' interests, achievement, and relevant learning
3. professional development opportunities
4. professional recognition
5. survival

Table 10, is a flow chart for strategic planning for curriculum integration which was developed with the assistance of pilot site teachers and administrators in the third pilot site. The basis behind this model is that local professional educators need to assess the needs of the local school setting, students, instructors, and employers to determine areas of most critical need before identifying strategies to integrate academics into vocational education. This model also takes a long range perspective on integration.

Table 10
Instructional Strategies for Curriculum Integration Pilot Site Integration-Process


TIMELINE
May, 1990
Develop Awareness of Board of Control and Regional Superintendent's Office
June, 1990 to August, 1990
Develop Awareness of Building Principals and Guidance Staff
August, 1990 to Sept., 1990
Develop Local Integration Strategic Planning Committee (LISPC)
Local Integration Strategic Planning Committee Membership (8 members) from:
Superintendent
Principal
Guidance counselor
Participating teachers
Business/industry reps.
Community leaders
Parents
Students
Spring, 1991 to Fall, 1993
Applied Academics Staff Completes Needs Assessment
By end of Fall Semester 1990-91
LISPC Prepares Strategic Plan from Needs Assessment
Jan., 1991 and Feb., 1991
Develop Awareness, Interest and Solicit Participation of Teachers
1991 (limited in Spring) 1992 1993 1994
Participating Teachers, Staff and Applied Academics Staff Actuate Integration Strategies
June, 1991, 1992, 1993, 1994, Jan., 1992, 1993 1994
Participating Teachers, Staff and Applied Academics Staff Complete Formative and Summative Evaluation
June, 1991, 1992, 1993, 1994, Jan., 1991, 1992 1993, 1994
Applied Academics Staff Completes Report of Activities

The outline in Table 11 lists the component parts of a guidebook for integration activities for teachers and administrators. Pilot site teachers and administrators indicated that the guidebook should have a clear description of the mission and provide a strong rationale statement. The guidebook should illustrate how teachers can benefit from integration activities, deal with pragmatic and practical problems associated with integration efforts, and provide sample lessons that illustrate for administrators and teachers the ways to implement integration. The guidebook should also provide a list of resource materials, methods and assistance in lesson planning, suggested scope and sequence for various courses, a brief national scope statement concerning integration, a list of resource people in the region and state who are already involved in projects, and a resource listing of curriculum materials and equipment. Additionally, the document should identify the concept of flexibility and local needs assessment in determining integration activities, as well as, suggest program timelines, and provide sample instruments for assessing the impact of integration.

Table 11
Integration Guidebook: Preparing Youth for a Productive 21st Century

Enhancing academic content in vocational classes and infusing applied learning in academic classes to improve students' basic skills.

Content Outline

I. Rationale and backdrop.
   - A. Reports on education
   - B. Reports on trends in the work setting
   - C. Recommendations towards a more effective school system to contribute to a more effective economy.

II. Strategies for integrating academics with vocational education to improve students' basic skills.

III. Barriers and incentives to integrating vocational with academic education.

IV. Support and marketing needed to integrate vocational with academic education.

V. Processes and resources for local integration activities.
   - A. Listing of key individuals.
   - B. Flow chart of contacts and activities.
   - C. Check list of participants or constituents involved.
   - D. Strategic planning processes and materials.
   - E. Curriculum adaptation or development module.
   - F. Resources
     1. Technical assistance personnel
     2. Curriculum materials
        - a. vocational education
        - b. academic
        - c. business and industry trade materials

VI. Assessing the impact of integration.

Conclusions

1. In general, teacher and student attitudes toward Applied Academics materials were positive. A majority of the students indicated that they thought the materials were important for them to understand, and most indicated that they found the materials interesting. Students indicated to their teachers that their favorite parts of the Applied Academics materials were the video programs and the simulations. (Research question 1).

2. The majority of the instructors reacted positively to the Applied Academics materials and over three-fourths (76%) of the respondents indicated that they would recommend the use of these materials to other teachers. Instructors considered the content of Applied Academic materials to be important for students to understand (Research question 1).

3. Teachers' major suggestions pointed to an increased effort at implementing the materials so that: (a) students enrolled in stand alone Applied Academics courses

receive academic credit, and (b) that more academic and vocational teachers have the opportunity to team teach (Research questions 2 and 3).

4. It is apparent that although local settings differ, these Applied Academics materials can be adapted and utilized and are seen as effective in infusing academic content in the vocational classes (Research questions 1 and 2).

5. In regards to the collaboration between academic and vocational teachers, the concern for adequate planning time and local bureaucratic support are key barriers to integration. The responses from the teachers indicated that the barriers to their collaborating with teachers outside their discipline were extrinsic and many times out of their control, such as, the attitudes between disciplines, admission to higher education, the local bureaucracy, and the limits on their time. On the other hand, the incentives which they identified illustrate the motivational nature and professional renewing which takes place because of collaborative activities (Research questions 3 and 4).

6. Concerning the strategic planning flow chart, pilot site teachers and administrators supported the notion of planning activities to meet needs, but there has to be a clear concise statement of mission and goals (Research question 5).

7. In dealing with local educational environments, the strategic planning committee should be made up of a broad cross-section of participants to provide input and to disseminate information to constituent groups (Research question 5).

8. Finally, in regards to content of a proposed guidebook, pilot site teachers and administrators indicated a strong need for such a document. They felt that it should be concise, in order that administrators and teachers could utilize it easily to proceed with individual school and instructor integration activities (Research question 6).

Recommendations for Business Educators

Based on the preliminary findings of this study, the following recommendations can be elicited.

1. Business educators have state and nationally produced curriculum materials which have activities which focus on the enhancement of basic skills. The integrating of these into business education courses should become a renewed emphasis of business educators.

2. Applied Academics curriculum materials do offer systems and content to enhance and reinforce academic skills in business education courses. Business educators should support the infusion of these where appropriate.

3. Business educators should make the effort to collaborate with academic teachers to effectively plan instruction to integrate academic content or to develop applied academic courses to improve students' basic skills.

4. Business educators should increase their involvement in integration activities, i.e. collaboration, team-teaching, teacher sharing. This builds respect and provides a tremendous opportunity for informing and marketing business education programs with in-school and out-of-school publics.

5. Business educators should develop and test instructional strategies and evaluation methods for integration efforts.

6. Business educators should utilize lead business educators, such as state supervisors for business education, state business education association leadership, and business teacher educators to pursue the implementation of integration strategies in their states which prove to be effective in raising the basic skills of business education students.

7. Business teacher educators and state business education supervisors should take a leadership role in assisting local education agencies in developing integration activities which are based on strategic planning to meet the needs of the local education agency.

8. Business educators in leadership positions should utilize planning processes and resource materials to meet local needs in the pursuit of raising students' basic skills abilities.

9. The Policy Commission for Business Education should develop a strong, supportive position statement regarding the enhancement and reinforcement of basic academic skills in business education courses to provide a philosophical base from which to focus business educators' activities.

10. NBEA and its affiliates, Delta Pi Epsilon chapters and NABTE institutions should make integration a priority activity over the next three to five years and provide leadership in developing and delivering teacher preservice and in-service training so that teachers have the pedagogical skills and materials to effectively infuse integration activities.

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International Business Communication: Perceptions of Importance From Association for Business Communication (ABC) Experts and Nonexperts

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Abstract

A list of actions influencing international business communication was developed through the use of the Delphi process. Both a Delphi panel of experts and a geographically stratified random sample of nonexperts who maintained membership in the ABC and who resided in the U.S.A. evaluated the importance of the action statements using a five-point Likert-type scale. While the experts perceived 50 of the action statements to be important ones, the nonexperts perceived all 57 of the action statements to be important ones. Factor analyses revealed that the 57 international business communication action statements can be grouped into 14 factors for the experts and 12 factors for the nonexperts. One-way analysis of variance tests revealed that perceptions of the importance of the action-statement factors are influenced by four demographic variables.

Introduction

Acknowledging changing worldwide business conditions, the influential American Assembly of Collegiate Schools of Business (AACSB) began requiring its member-schools in 1974 to include in their curricula content about the worldwide nature of business ("Accreditation Council Forum," 1978). Subsequently, most U.S.A. schools of business began to incorporate international content into their instructional programs, including those in business communication.

The resulting internationalization of business communication is evidenced by the increasing number of chapters in textbooks and articles in professional literature that address aspects of international business communication. All types of business communication are being identified as international business communication, according to Ramsey, Rossi, Underwood, and Wilson (1986), resulting in a designation perceived by most as inappropriate.

Kilpatrick (1984) noted that communication plays an important role in international business. After examining the existing international business communication literature, she concluded that little of the international business communication literature is based on concrete data and that most of it is based on personal experience and observation or secondary sources.

From a study of instructors' perceptions of international material in business communication textbooks, Kohut and Baxter (1985) found that some instructor-respondents believe that certain textbooks contain international material while others believe that the same textbooks do not contain international material. "This confusion underscores the need for more exploration, discussion, and research on what 'international' really means." (p. 244)

Although the international business communication literature has grown, writers have not addressed the nature of the field of international business communication in substantive ways, resulting in a major void in the expanding international business communication literature. In fact, Scott and Green (1988) identified the international business communication field as a very important business communication challenge needing to be addressed. The Association for Business Communication's Research Topics Subcommittee (1988) also identified international business communication as a field needing to be researched in a scholarly manner.

Determining what the nature of international business communication is as perceived by both the expert and nonexpert members of the Association for Business Communication (ABC) who reside in the United States of America (U.S.A.), two important groups impacted by the internationalization of business communication, is one

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important challenge. Subsequently, the purposes of this exploratory research study were (1) to determine the international business communication action statements and their importance as perceived by both U.S.A.-based ABC-affiliated experts and nonexperts, (2) to determine systems for categorizing the international business communication action statements into meaningful factors for both experts and nonexperts, and (3) to determine if significant differences in perceptions of importance for the experts and nonexperts existed among the factors and the demographic variables. While this exploratory study did not seek to develop a definition for international business communication, it did seek to uncover information that would be useful in better defining, understanding, and reaching consensus regarding what international business communication is.

Literature Review

The international business communication-related literature was thoroughly reviewed for guidance and direction for the study. No substantive attempts to define or to clarify the nature of international business communication were uncovered in the international business communication literature. Instead, almost all of the international business communication literature related in one way or another to instructional programs in educational institutions or in businesses.

International business communication program content has been addressed by numerous writers at both the general and specific levels. For example, a number of writers have associated international business communication with creating an awareness of the languages, the cultures, and the political, legal, and economic systems (Lathan, 1983; Ramsey, Rossi, Underwood, & Wilson, 1986; Paulsell, 1987) and with the developing of culturally and linguistically fluent international businesspersons (Kilpatrick, 1984; Kohut & Baxter, 1985; Victor, 1986). Others have been so specific as to recommend the teaching of such things as the correct use of Standard English while recognizing differences within English-speaking countries (Haneda, 1976; McDowell, 1987; Birkel, 1988) and the teaching of the nonverbal aspects of international business communication (Kohut & Baxter, 1985; Himstreet & Baty, 1987).

A variety of international business communication writers have shared ideas about teaching methodologies. For example, some have advocated a particular overall approach to teaching international business communication, such as the culture-specific, the culture-general, or the context-based approach (Baird & Stull, 1981; Broome, 1986). Others have presented arguments for teaching international business communication as a separate unit or course and for integrating it throughout a relevant course (Varner, 1987; Zimpfer & Underwood, 1988).

Some international business communication authors have suggested areas for research and development. Several writers, for example, have noted the need for more research toward the development of a generally accepted definition and workable model for international business communication (Hildebrant, 1981; Haworth & Savage, 1987; Zimpfer & Underwood, 1988). Others have offered suggestions for strengthening the international business communication literature and for developing the international business communication field (Kilpatrick, 1984; Zimpfer & Underwood, 1988).

Only one Delphi study involving beliefs, issues, and philosophies was found in the business communication literature. Scott and Green's (1988) research provided strong support for investigating the international business communication field as a major challenge needing to be addressed. It also provided useful information about how to implement the Delphi process with business communication experts to develop and rate action statements and about how to survey business communication nonexperts to determine their perceptions of the importance of action statements.

Procedures

The procedures for this study are subdivided into three phases: The Delphi-Process Phase, The Mailed-Survey Phase, and The Data-Analyses Phase.

The Delphi-Process Phase

Actions impacting the international business communication field and its practitioners were identified through the comprehensive literature search. These actions were converted into 41 international business communication action statements that were presented to a Delphi panel of 22 ABC-affiliated expert-judges who resided in the U.S.A. The Delphi-panel experts were selected based on their major contributions to the international business communication field in terms of a combination of their authorship, speakership, and leadership within the past ten years. These U.S.A.-based Delphi-panel experts independently created, refined, and evaluated the international business communication action statements, increasing the number of statements by 16 to a total of 57. One hundred percent of the Delphi-panel experts provided usable responses during each of the three Delphi rounds. Using a five-point Likert-type scale of importance, the experts strove toward consensus on the ratings of importance for the individual action statements.

These action statements involved the program structure category, which was for action statements relating to the configuration of educational programs in international business communication; the program content category, which was

for action statements relating to what should be taught in educational programs in international business communication; the program methodology category, which was for action statements relating to how to deliver the educational program content in international business communication; and the research and development category, which was for action statements relating to the scholarly investigation of aspects of international business communication and the enhancement of the international business communication field.

The Mailed-Survey Phase

All 57 international business communication action statements and the five-point Likert-type scale of importance from the final Delphi-process questionnaire were incorporated into a survey questionnaire that was pilot tested, refined, and mailed along with cover letters and preaddressed, postage-paid envelopes to a geographically stratified random sample that represented the nonexpert ABC general membership residing within the U.S.A. This group was also selected for study since its members are already interested and involved in business communication and since they have a high potential to be impacted directly by the emerging international business communication field.

A sample size of 350 was selected, and a 50 percent response rate was sought following guidelines provided by Wunsch (1986). Follow-up postcards and replacement survey questionnaires with preaddressed, postage-paid envelopes were mailed to nonrespondents at the ends of the third and sixth weeks respectively after the initial mailing. A return rate of 53 percent was achieved after the second follow-up mailing. About 51 percent of this sample provided responses that were usable for purposes of data analyses.

To ensure that the mailed-survey data were representative, a variety of procedures were used. A comparison of the actual and theoretical distributions of returned survey questionnaires from each ABC region confirmed proportional representation. Since the usable response rate was deemed to be adequate (50.0 percent for a sample size of 350), comparisons of selected characteristics of the respondents and of the sample were made. All differences were found to be less than 5 percent, affirming confidence at the .05 level that the responses are unbiased (see Wunsch, 1986). A comparison of the data provided by the early and late respondents also revealed no significant differences in terms of demographic variables or perceptions of importance. From these facts it may be inferred (a) that had the nonrespondents actually responded, they would have responded in a manner similar to the respondents and (b) that despite the nonresponse factor, the respondents are representative of the population (see West, 1977). Furthermore, data from additional follow-up mailings to the nonrespondents after the deadline for accepting research-study responses revealed (a) that trivial reasons unrelated to the central focus and purpose of the survey questionnaire contributed to nonresponse (see West, 1977) and (b) that when nonrespondents were persuaded to complete the survey questionnaire after the deadline for accepting research-study responses, their demographic variables and ratings of importance were not significantly different from those who responded prior to the deadline (see Wunsch, 1986). All of these data suggest (a) that the mailed-survey respondents are not systematically different from the sample or the population and (b) that the mailed-survey respondents are not systematically different from the nonrespondents. Thus, concerns for both respondent and nonrespondent bias are diminished.

The Data-Analyses Phase

The data from the final Delphi-process and mailed survey questionnaires were compiled and entered into a computer for descriptive and inferential analyses. The researchers used the Statistical Package for Social Sciences (SPSS) 3.0 programs for the analyses.

The demographic analyses included 12 variables: gender of respondent; region of residence; age of respondent; type of highest degree earned; type of employment affiliation; type of educational institution; type of academic institution affiliation; discipline of primary academic affiliation; number of years of business communication teaching experience; experience in a leadership capacity; experience in a speakership capacity; and experience in an authorship capacity.

Means and standard deviations were calculated for the action statements as perceived by the experts and nonexperts. Factor analyses were performed to determine if there were systematic processes for reducing the data into a meaningful set of factors for the experts and for the nonexperts. One-way analysis of variance tests were performed using Duncan's multiple range tests if there were more than two groups to determine if and where significant differences existed among the factors for the experts and for the nonexperts and the demographic variables.

Cronbach's alphas were computed to assess the reliability of both data-gathering questionnaires. The Cronbach's alpha for the experts' questionnaire was .86, while the Cronbach's alpha for the nonexperts' questionnaire was .96; both alpha values confirm high instrument reliability.

Demographics

The experts were composed of 64 percent males and 36 percent females who represented all geographic regions of the U.S.A. Fifty percent of the experts were in the 41-50 year old age category, 14 percent were in the younger age categories, and 36 percent were in the older age categories. The experts were highly educated, with 86 percent possess-

ing doctor's degrees and 14 percent possessing master's degrees. While about 5 percent of the experts were affiliated with noneducational institutions, about 95 percent were affiliated with educational institutions, with 86 percent at public institutions and 14 percent at private institutions. One hundred percent of the experts who worked at educational institutions were affiliated with colleges and universities. The primary academic affiliations and frequencies of the experts who worked at educational institutions were as follows: other business, 53 percent; business education, 33 percent; and communication, 14 percent. The experts were composed of experienced teachers: 33 percent had taught business communication courses for 21 or more years; 28 percent, 11-15 years; 24 percent, 6-10 years; 10 percent, 16-20 years; and 5 percent, 1-5 years. While 41 percent of the experts maintained membership in National Business Education Association (NBEA), 36 percent of the experts maintained membership in Delta Pi Epsilon (DPE). The experts have been major contributors to the business communication discipline within the past ten years, with 68 percent having served in an ABC regional or national leadership capacity, with 95 percent having presented at an ABC regional or national meeting in a speakership capacity, and with 95percent having worked on published business communication educational materials in an authorship capacity.

The nonexperts were composed of 42 percent males and 58 percent females who represented all geographic regions of the U.S.A. Thirty-eight percent of the nonexperts were in the 41-50 year old age category, 27 percent were in the younger age categories, and 35 percent were in the older age categories. The nonexperts were also highly educated, with 62 percent possessing doctor's degrees, 33 percent possessing master's degrees, and 5 percent possessing other degrees. While 11 percent of the nonexperts were affiliated with non- educational institutions, 89 percent of the nonexperts were affiliated with educational institutions, with 81 percent at public institutions and 19 percent at private institutions. The nonexperts who worked at educational institutions were distributed as follows: colleges and universities, 80 percent; junior and community colleges, 13 percent; private business colleges, 4 percent; secondary schools, 1 percent; vocational-technical schools, 1 percent; and city, county, and state educational agencies, 1 percent. The primary academic affiliations and frequencies of the nonexperts who worked at educational institutions were as follows: business education, 45 percent; English, 21 percent; other business, 19 percent; communication, 10 percent; speech, 3 percent; education, 1 percent; and other, 1 percent. The nonexperts were composed of experienced teachers: 31 percent had taught business communication courses for 6-10 years; 20 percent, 1-5 years; 19 percent, 21 or more years; 18 percent, 11-15 years; and 12 percent, 16-20 years. While 34 percent of the nonexperts maintained membership in NBEA, 33 percent of the nonexperts maintained membership in DPE. The nonexperts have been moderate contributors to the business communication discipline within the past ten years, with 29 percent having served in an ABC regional or national leadership capacity, with 58 percent having presented at an ABC regional or national meeting in a speakership capacity, and with 46 percent having worked on published business communication educational materials in an authorship capacity.

To the extent that the demographic characteristics of other U.S.A.-based international business communication experts and nonexperts are similar to the demographic characteristics of the respective sample groups, they are also representative of other U.S.A.-based international business communication experts and nonexperts.

Findings

The findings from this study are subdivided into three sections: Means and Standard Deviations for the International Business Communication Action Statements, Factor Analyses Results for the International Business Communication Action Statements, and Significant Influences Among Action-Statement Factors and Demographic Variables.

Means and Standard Deviations for the International Business Communication Action Statements

At the conclusion of the Delphi process, the expert-judges produced a list of 57 international business communication action statements that was rated on a five-point Likert-type scale of importance from 5, critically important, to 1, not important. Table 1 shows that these experts rated 50 of the 57 international business communication action statements as important actions, ones having mean scores of at least 2.6, the lower limit of the important category on the continuum underlying the importance scale. Table 1 also shows that the nonexperts rated all 57 international business communication action statements as important actions using the same five-point Likert-type scale. While the experts rated action statement No. 3, Establish an awareness of the languages, cultures, and political, legal, and economic systems of other countries, as the most important one, the nonexperts perceived action statements No. 3, Establish an awareness of the languages, cultures, and political, legal, and economic systems of other countries, and No. 15, Encourage the use of simple, clear, precise, and concise language for international business communication purposes, as equally important ones.

Table 1

Experts' and Nonexperts' Means and Standard Deviations for the International Business Communication Action Statements

Number and international business communication action statement	Experts (n = 22) Mean	Experts (n = 22) S.D.	Nonexperts (n = 180) Mean	Nonexperts (n = 180) S.D.
No. 3 Establish an awareness of the languages, cultures, and political, legal, and economic systems of other countries.	4.864	.351	4.117	.917
No. 20 Teach such nonverbal aspects of international business communication as use of time, personal space, body language, and manner of dress.	4.818	.395	4.061	.910
No. 55 Encourage professional organizations to promote further business research and development of the international business communication field.	4.773	.528	3.617	1.010
No. 34 Increase the quantity and improve the quality of international business communication training programs that are available to personnel in the business world.	4.682	.568	3.467	1.155
No. 4 Emphasize that difficulties in international business communication usually arise from differences in the languages, cultures, and political, legal, and economic systems of countries.	4.500	1.225	4.094	.889
No. 10 Encourage the study of languages other than English for business purposes.	4.500	1.263	3.778	1.039
No. 41 Use such teaching methods as readings, lectures, experiential exercises, role playings, simulations, and laboratories to develop international business communication knowledges, skills, and attitudes.	4.409	1.054	3.494	1.165
No. 46 Investigate the international communication problems of particular businesses and identify the communication knowledges, skills, and attitudes that are needed to minimize or alleviate those problems.	4.364	1.002	3.533	1.070
No. 35 Emphasize culture-specific international business communication training programs in the business world so that personnel are better prepared for the specific cultural environments in which they will work and live.	4.318	.945	3.567	1.196
No. 32 Encourage U.S. international corporations to sponsor foreign internships for U.S. students and faculty interested in other business cultures.	4.227	.813	3.550	1.074
No. 42 Use guest speakers from other cultures and countries to add realism to international business communication instruction.	4.227	1.066	3.756	1.112

(table continues)

Number and international business communication action statement	Experts (n = 22) Mean	S.D.	Nonexperts (n = 180) Mean	S.D.
No. 28 Teach cross-cultural business communication for use in the United States.	4.227	1.270	3.528	1.075
No. 43 Use travel-study tours and residency programs to refine international business communication knowledges, skills, and attitudes.	4.182	.907	3.550	1.110
No. 13 Encourage schools to teach geography and world politics.	4.182	1.097	3.778	1.096
No. 5 Prepare culturally and linguistically fluent businesspersons who can conduct business effectively in selected business environments.	4.091	.610	3.744	1.031
No. 50 Identify the process and steps to internationalize a business communication course.	4.000	.873	3.367	1.148
No. 1 Emphasize the increasing need for and promote the importance of international business communication as the primary means through which international business is transacted.	4.000	1.718	3.861	1.040
No. 48 Research the business communication skills that transcend cultural boundaries and investigate their relative importance.	3.909	.921	3.506	1.151
No. 27 Work with the American Assembly of Collegiate Schools of Business (AACSB) to ensure adequate coverage of international dimensions of business.	3.909	1.065	3.133	1.343
No. 17 Teach both direct and indirect logic and thinking patterns.	3.909	1.630	3.744	1.139
No. 18 Develop the knowledges, skills, and attitudes necessary to assess the business communication practices in another culture and to combine elements of that culture with those of another culture to facilitate the transaction of business.	3.864	1.246	3.756	1.102
No. 15 Encourage the use of simple, clear, precise, and concise language for international business communication purposes.	3.818	1.296	4.117	1.115
No. 21 Teach such aspects of oral international business communication as listening, interpersonal communication, interviewing, and negotiating.	3.773	1.193	4.017	.900
No. 8 Establish a minimum core graduation requirement of at least one international business communication course for all undergraduate and graduate international business majors.	3.773	1.478	3.256	1.282
No. 2 Promote an interdisciplinary approach to develop international business communication knowledges, skills, and attitudes and encourage business, foreign language, and other interested faculty to form a partnership in international business communication.	3.773	1.572	3.744	1.099

(table continues)

Number and international business communication action statement	Experts (n = 22) Mean	S.D.	Nonexperts (n = 180) Mean	S.D.
No. 23 Teach such aspects of written international business communication as message content, organization, style, semantics, readability, comprehensibility, and format.	3.727	1.077	3.828	1.056
No. 7 Establish a minimum core graduation requirement of at least some international business communication instruction for all undergraduate and graduate business majors.	3.727	1.202	3.183	1.146
No. 47 Develop international business communication training materials and programs and disseminate them through a centralized network or clearinghouse.	3.682	.995	3.361	1.195
No. 37 Encourage businesses to work with expert consultant-specialists on complicated international business communication tasks.	3.591	1.297	3.361	1.195
No. 38 Teach international business communication as a separate unit or course and by integrating it throughout other relevant courses.	3.591	2.016	3.289	1.335
No. 57 Collect significant articles relating to international business communication into one volume that is periodically updated.	3.500	1.372	3.317	1.198
No. 11 Develop and promote for native English speakers foreign language courses that emphasize speaking, listening, writing, and reading skills for business purposes.	3.455	.858	3.633	1.133
No. 49 Determine the most effective methodologies for teaching business communication skills that transcend cultural boundaries.	3.455	1.335	3.644	1.117
No. 44 Develop a generally accepted definition of and workable model for international business communication.	3.409	.908	3.339	1.215
No. 12 Develop and promote for nonnative English speakers English language courses that emphasize speaking, listening, writing, and reading skills for business purposes.	3.409	1.008	3.728	1.098
No. 9 Maintain English as the primary language of international business.	3.364	1.649	3.572	1.341
No. 14 Require two years of foreign language for college admission and two more years for college graduation.	3.364	1.649	2.900	1.346
No. 56 Develop an international business communication journal.	3.318	1.171	3.178	1.168
No. 40 Teach international business communication through the context-based approach, which focuses on communication and culture at the structural, situational, and meaning levels.	3.182	.958	3.144	1.256
No. 19 Emphasize the professional and personal benefits from using formal and informal communication channels while conducting international business.	3.136	1.207	3.489	1.080
No. 45 Improve the international business communication literature by focusing on primary data rather than on secondary data.	3.136	1.457	3.122	1.336

(table continues)

Number and international business communication action statement	Experts (n = 22) Mean	S.D.	Nonexperts (n = 180) Mean	S.D.
No. 26 Teach strategies to facilitate the international transfer of information.	3.091	1.306	3.517	1.091
No. 16 Emphasize Standard English to facilitate international business communication while recognizing differences in usage among educated people from countries where English is the primary language.	3.091	1.716	3.706	1.199
No. 30 Encourage academic institutions involved in graduate teacher education and in continuing education to include courses in international business communication, its teaching and practice.	3.000	.926	3.350	1.086
No. 22 Teach such aspects of oral international business communication as supervising and managing foreign nationals.	3.000	1.662	3.433	1.031
No. 24 Strive toward more unified technical terminology.	2.864	.834	3.211	1.210
No. 6 Train international business communication consultant-specialists who can resolve communication problems in different business environments.	2.773	1.193	3.517	1.175
No. 39 Teach international business communication through the culture-specific approach, which focuses on one culture at a time, or through the culture-general approach, which focuses on groups of cultures at one time.	2.682	1.129	2.878	1.331
No. 29 Instruct business communication students about the differences between British and American English, especially vocabulary differences.	2.682	1.555	2.817	1.141
No. 36 Offer language training for business personnel who wish to become bilingual or multilingual managers.	2.636	1.177	3.556	1.197
No. 54 Develop a standardized international system of graphic symbols to overcome some of the obstacles to written international business communication.	2.591	1.054	3.022	1.237
No. 52 Devise international standards for business communication.	2.500	.859	2.883	1.220
No. 53 Devise international standards for information processing and transfer.	2.455	.858	3.061	1.206
No. 25 Strive toward more unified business practices and communication practices throughout the business world.	2.409	1.054	2.883	1.238
No. 33 Promote uniform standards for international business communication teachers and trainers.	2.273	1.202	2.761	1.164
No. 31 Encourage qualified foreign nationals to complete business degrees at U.S. universities under the sponsorship of U.S. corporations that they will later represent.	2.227	1.152	2.817	1.235
No. 51 Develop tests for measuring business foreign language competencies that are acceptable to both the business and academic communities.	1.909	.971	2.994	1.179

Factor Analyses Results for the International Business Communication Action Statements

Factor analysis, a data reduction technique, was used to reduce the 57 international business communication action statements into a smaller number of factors for the experts and for the nonexperts. Factor analysis strives to construct new variables from the old variables that explain as much of the total variance as possible with as few new variables as possible (Kleinbaum & Kupper, 1978; Wentz, 1979). Such analysis makes the data analysis more manageable and helps to minimize the risk of incorrect rejection or Type I error caused by repeated statistical testing of the data. The factor analysis for the experts generated 14 factors with eigenvalues greater than or equal to 1.000 that accounted for 92.9 percent of the variance. The factor analysis for the nonexperts generated 13 factors with eigenvalues greater than or equal to 1.000 that accounted for 67.9 percent of the variance. Since the data rotations were orthogonal, the factors remained statistically uncorrelated (Kleinbaum & Kupper, 1978). Only factor loadings of plus or minus .600 were considered to eliminate spurious items, resulting in the disregarding of Factor 13 for the nonexperts because of its factor loadings of .559 and .509 and subsequently the lowering of the cumulative percentage of variance from 67.9 percent to 66.0 percent (see Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

Results for the experts. Table 2 shows the key information from the factor analysis, including descriptive titles, factor loadings, and percentages of variance, for each factor for the experts. Factor 1, business language, which accounts for one-sixth of all of the variance, includes action statement Nos. 9, 12, 15, 16, 39, and 54. Factor 2, instructional guidelines, includes action statement Nos. 3, 21, 23, and 41. Factor 3, international standards, includes action statement Nos. 20, 52, and 53. Factor 4, desirable standards, includes action statement Nos. 4, 7, 8, 24, 34, and 46. Factor 5, instructional goals, includes action statement Nos. 1, 26, 27, and 48. Factor 6, research goals, includes action statement Nos. 25, 40, 50, and 55. Factor 7, business-world dimensions, includes action statement Nos. 22 and 37. Factor 8, cross-cultural perspectives, includes action statement Nos. 17, 18, and 42. Factor 9, business foreign language, includes action statement Nos. 11 and 49. Factor 10, broadening background, includes action statement Nos. 13 and 14. Factor 11, business language differences, includes action statement Nos. 10, 29, and 45. Factor 12, enrichment experiences, includes action statement No. 43. Factor 13, cross-cultural goals, includes action statement No. 5. Factor 14, business-sponsored cross-cultural education, includes action statement No. 31.

Results for the nonexperts. Table 3 shows the key information from the factor analysis, including descriptive titles, factor loadings, and percentages of variance, for each factor for the nonexperts. Factor 1, training programs, which accounts for three-tenths of all of the variance, includes action statement Nos. 34, 35, and 39. Factor 2, research goals, includes action statement Nos. 48, 49, and 50. Factor 3, instructional content, includes action statement Nos. 20, 21, and 23. Factor 4, unified standards, includes action statement Nos. 24, 25, and 26. Factor 5, international English, includes action statement Nos. 9 and 16. Factor 6, information dissemination, includes action statement Nos. 55, 56, and 57. Factor 7, cross-cultural goals, includes action statement Nos. 5 and 6. Factor 8, business foreign language, includes action statement Nos. 10 and 11. Factor 9, interdisciplinary approach, includes action statement No. 2. Factor 10, broadening background, includes action statement No. 13. Factor 11, business-sponsored cross-cultural education, includes action statement No. 31. Factor 12, business language characteristics, includes action statement No. 15.

The results of the factor analyses for the experts and for the nonexperts are compatible with the four-part classification scheme–program structure, program content, program methodology, and research and development--that the researchers devised after completing the literature review phase of the research.

Significant Influences Among Action-Statement Factors and Demographic Variables

Relationships among the experts' and nonexperts' demographic variables and perceptions of importance for the international business communication action-statement factors were also investigated. One-way analysis of variance tests were performed using Duncan's multiple range tests if there were more than two groups to determine (1) if respondents from various demographic categories differed significantly ($p < .05$) in their perceptions of importance for action-statement factors and (2) if so, where those statistically significant differences occurred. Results from the computations for the most influential demographic variables of gender, age, discipline, and speakership are reported in this article.

Table 2

Experts' Factor Analysis Results for the International Business Communication Action Statements

Factor	Action	Factor loading	Percentage variance
1	Business language		
	Maintain English as the primary language of international business (No. 9)	.644	
	Develop and promote for nonnative English speakers English language courses emphasizing speaking, listening, writing, and reading for business purposes (No. 12)	.842	
	Encourage use of simple, clear, precise, and concise language (No. 15)	.874	
	Emphasize Standard English while recognizing national differences (No. 16)	.709	
	Use the culture-specific or culture-general approach (No. 39)	.631	
	Develop an international system of graphic symbols to overcome obstacles to written communication (No. 54)	.622	16.6
2	Instructional guidelines		
	Establish awareness of languages, cultures, and systems of other countries (No. 3)	.775	
	Teach oral aspects of international business communication (No. 21)	.892	
	Teach written aspects of international business communication (No. 23)	.692	
	Use such teaching methods as readings, lectures, experiential exercises, role playings, simulations, and laboratories (No. 41)	.789	13.1
3	International standards		
	Teach nonverbal aspects of international business communication (No. 20)	.673	
	Devise standards for international business communication (No. 52)	.950	
	Devise standards for information processing and transfer (No. 53)	.928	10.3
4	Desirable standards		
	Emphasize that difficulties in international business communication arise from differences in languages, cultures, and systems of countries (No. 4)	.922	
	Establish a minimum core graduation requirement of some international business communication instruction for all undergraduate and graduate business majors (No. 7)	.679	

(table continues)

Factor	Action	Factor loading	Percentage variance
	Establish a minimum core graduation requirement of at least one international business communication course for all undergraduate and graduate international business majors (No. 8)	.880	
	Strive toward unified technical terminology (No. 24)	.731	
	Increase the quantity and improve the quality of training programs available to businesspersons (No. 34)	.676	
	Investigate the international communication problems of businesses and identify the knowledges, skills, and attitudes needed to minimize or alleviate these problems (No. 46)	.626	8.6
5	Instructional goals		
	Emphasize the increasing need for and promote the importance of international business communication (No. 1)	.813	
	Teach strategies to facilitate worldwide information transfer (No. 26)	.607	
	Work with AACSB to ensure coverage of international dimensions of business (No. 27)	.823	
	Investigate cross-cultural skills and their importance (No. 48)	.721	7.9
6	Research goals		
	Strive toward unified worldwide business and communication practices (No. 25)	.706	
	Use the context-based approach to teaching (No. 40)	.791	
	Identify the process and steps to internationalize a business communication course (No. 50)	.800	
	Encourage professional organizations to promote research and development (No. 55)	.789	6.8
7	Business-world dimensions		
	Teach oral aspects of international business communication such as supervising and managing foreign nationals (No. 22)	.794	
	Encourage businesses to work with consultant-specialists on complicated tasks (No. 37)	.846	5.7
8	Cross-cultural perspectives		
	Teach both direct and indirect logic and thinking patterns (No. 17)	.821	
	Develop the knowledges, skills, and attitudes to assess the business communication practices in another culture and to combine elements of that culture with those of another culture to facilitate business (No. 18)	.760	

(table continues)

Factor	Action	Factor loading	Percentage variance
	Use guest speakers from other cultures and countries to add realism to instruction (No. 42)	.604	5.4
9	Business foreign language		
	Develop and promote foreign language speaking, listening, writing, and reading for business purposes (No. 11)	.911	
	Determine the most effective cross-cultural teaching methodologies for skills (No. 49)	.606	5.0
10	Broadening background		
	Encourage schools to teach geography and world politics (No. 13)	.690	
	Require two years of foreign language for college admission and two more years for college graduation (No. 14)	.688	4.3
11	Business language differences		
	Encourage study of foreign languages for business purposes (No. 10)	.634	
	Instruct business communication students about the differences between British and American English (No. 29)	.666	
	Improve the literature by focusing on primary rather than secondary data (No. 45)	.799	2.9
12	Enrichment experiences		
	Use travel-study tours and foreign residency programs to refine knowleges, skills, and attitudes (No. 43)	.882	2.4
13	Cross-cultural goals		
	Prepare culturally and linguistically fluent businesspersons for selected environments (No. 5)	.825	2.1
14	Business-sponsored cross-cultural education		
	Encourage foreign nationals to complete U.S. business degrees under the sponsorship of U.S. companies (No. 31)	.671	1.8
Total			92.9

Note. Only factor loadings greater than plus or minus .600 are shown.

Table 3
Nonexperts' Factor Analysis Results for the International Business Communication Action Statements

Factor	Action	Factor loading	Percentage variance
1	Training programs		
	Increase the quantity and improve the quality of training programs (No. 34)	.605	
	Emphasize culture-specific training programs (No. 35)	.605	
	Use the culture-specific or culture-general approach (No. 39)	.727	30.1
2	Research goals		
	Investigate cross-cultural skills and their importance (No. 48)	.803	
	Determine the most effective cross-cultural teaching methodologies for skills (No. 49)	.827	
	Identify the process and steps to internationalize a business communication course (No. 50)	.708	6.9
3	Instructional content		
	Teach nonverbal aspects of international business communication (No. 20)	.654	
	Teach oral aspects of international business communication (No. 21)	.709	
	Teach written aspects of international business communication (No. 23)	.654	4.3
4	Unified standards		
	Strive toward unified technical terminology (No. 24)	.781	
	Strive toward unified worldwide business and communication practices (No. 25)	.677	
	Teach strategies to facilitate worldwide information transfer (No. 26)	.612	3.9
5	International English		
	Maintain English as the primary language of international business (No. 9)	.754	
	Emphasize Standard English while recognizing national differences (No. 16)	.736	3.6
6	Information dissemination		
	Encourage professional organizations to promote research and development (No. 55)	.688	
	Develop an international business communication journal (No. 56)	.763	
	Publish periodically an international business communication volume (No. 57)	.658	3.1
7	Cross-cultural goals		
	Prepare culturally and linguistically fluent businesspersons for selected environments (No. 5)	.766	
	Train consultant-specialists who resolve problems in different environments (No. 6)	.652	2.9

(table continues)

Factor	Action	Factor loading	Percentage variance
8	Business foreign language		
	Encourage study of foreign languages for business purposes (No. 10)	.687	
	Develop and promote foreign language speaking, listening, writing, and reading for business purposes (No. 11)	.800	2.6
9	Interdisciplinary approach		
	Promote an interdisciplinary approach to develop knowledges, skills, and attitudes among business, foreign language, and other interested faculty (No. 2)	.652	2.5
10	Broadening background		
	Encourage schools to teach geography and world politics (No. 13)	.648	2.2
11	Business-sponsored cross-cultural education		
	Encourage foreign nationals to complete U.S. business degrees under the sponsorship of U.S. companies (No. 31)	.700	2.1
12	Business language characteristics		
	Encourage use of simple, clear, precise, and concise language (No. 15)	.754	1.9
Total			66.0

Note. Only factor loadings greater than plus or minus .600 are shown.

Influences of gender. Table 4 summarizes the key information from the one-way analysis of variance computations for the action-statement factors with gender-related significant differences in means for both the experts and the nonexperts. For Factor 12, enrichment experiences, for the experts and for Factor 5, international English, Factor 7, cross-cultural goals, and Factor 12, business language characteristics, for the nonexperts, the male expert and nonexpert respondents consistently had mean scores that were lower than those of the female expert and nonexpert respondents.

Table 4
Experts' and Nonexperts' Gender-Related Influences on Action-Statement Factors

Factor number	Factor name	p Value	Means	
			Male	Female
	Experts (n = 22)			
12	Enrichment experiences	.022	-.359	.629
	Nonexperts (n = 180)			
5	International English	.048	-.172	.126
7	Cross-cultural goals	.015	-.211	.154
12	Business language characteristics	.007	-.233	.170

Influences of age. Table 5 summarizes the key information from the one-way analysis of variance computations for the action-statement factors with age-related significant differences in means for both the experts and the non-experts. For Factor 4, unified standards, the nonexpert respondents aged 31-40 years old and 41-50 years old had mean scores that were lower than those of nonexpert respondents aged 61 years old or over, who had the highest mean scores. For Factor 5, international English, and Factor 8, business foreign language, the nonexpert respondents aged 21-30 years old had the highest mean scores. For Factor 11, business-sponsored cross-cultural education, the nonexpert respondents aged 21-30 years old had the lowest mean scores.

Table 5
Experts' and Nonexperts' Age-Related Influences on Action-Statement Factors

Factor number	Factor name	p Value	Means 21-30 years	31-40 years	41-50 years	51-60 years	61+ years
		Experts (n = 22)					
	None						
		Nonexperts (n = 180)					
4	Unified standards	.028		-.192			.498
					-.170		.498
5	International	.023	.811	-.197			
	English		.811		-.180		
8	Business foreign	.022	1.159	-.057			
	language		1.159		-.070		
			1.159			-.103	
11	Business-sponsored	.044	-.812			.206	
	cross-cultural		-.812				.298
	education						

Note. There were no significant differences for respondents in the 1-20 years age category; because of space constraints, that category is not shown.

Influences of discipline. Table 6 summarizes the key information from the one-way analysis of variance computations for the action-statement factors with discipline-related significant differences in means for both the experts and the nonexperts. For Factor 2, research goals, and Factor 3, instructional content, the nonexpert respondents who were business educators consistently had the highest mean scores. For Factor 8, business foreign language, and Factor 9, interdisciplinary approach, the nonexpert respondents who were business educators had the lowest mean scores.

Influence of speakership. Table 7 summarizes the key information from the one-way analysis of variance computations for the action-statement factors with speakership-related significant differences in means for both the experts and the nonexperts. For Factor 5, international English, and Factor 8, business foreign language, the nonexpert respondents who had presented at ABC regional or national meetings within the past ten years consistently had the highest mean scores.

Conclusions

Based on study data, the following conclusions are made. The expert and nonexpert respondents are different in terms of a majority of the demographic variables. Both the experts and nonexperts perceive that there are a large number of important international business communication action statements that impact international business communication. While the responses of the experts on the international business communication action statements can be grouped into 14 action-statement factors, the responses of the nonexperts on the international business communication action statements can be grouped into 12

Table 6
Experts' and Nonexperts' Discipline-Related Influences on Action-Statement Factors

Factor number	Factor name	p Value	Means: Bus. ed.	Other bus.	Com.	Eng.
		Experts (n = 21)				
	None					
		Nonexperts (n = 160)				
2	Research goals	.000	.195	- .347		
3	Instructional content	.034	.226			- .269
8	Business foreign language	.000	- .357	.105		
			- .357		.754	
			- .357			.348
				.105	.754	
9	Interdisciplinary approach	.007	- .176		.647	
				.081	.647	
					.647	.025

Note. Bus. ed. = Business education, Other bus. = Other business, Com. = Communication, and Eng. = English.

Note. There were no significant differences for respondents in the education, speech, and other disciplines categories; because of space constraints, those categories are not shown.

Table 7
Experts' and Nonexperts' Speakership-Related Influences on Action-Statement Factors

Factor number	Factor name	p Value	Means: Have presented	Have not presented
		Experts (n = 22)		
	None			
		Nonexperts (n = 180)		
5	International English	.046	.124	- .178
8	Foreign business language	.034	.147	- .172

action-statement factors. Five of these action-statement factors have identical names, and several others have similar names. Perceptions of the importance of the international business communication action-statement factors are influenced by gender of respondent, age of respondent, discipline of primary academic affiliation, and experience in a speakership capacity, especially for nonexperts and for both the nonexperts' Factor 5, international English, and the nonexperts' Factor 8, business foreign language.

Recommendations

Based on study findings and conclusions, the following recommendations are made: (1) The Association for Business Communication (ABC) should utilize the study findings for developing the international business communication discipline and for guiding business communication practitioners interested and involved in international business communication. (2) The ABC should focus its attention and that of all business communication practitioners it influences on the highest rated international business communication action statements for experts and for nonexperts that influence international business communication and on the action-statement factors for experts and for nonexperts that influence international business communication. (3) Business communication practitioners should have opportunities through forums sponsored by professional organizations to share their perceptions about the important international business communication action statements and to suggest possible ways to minimize the differences in perceptions among experts and nonexperts with various demographic characteristics. (4) Business communication instructors who are involved in international business communication should use the findings from this study as they plan and implement instructional programs in educational institutions and in businesses until this research study is replicated or superseded. (5) Other researchers should address the important international business communication action statements, perhaps conducting identical, similar, or related types of studies within the next decade.

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Integration of the Computer into the Elementary School Curriculum: A Collaborative Case Study

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Abstract

This study describes how keyboarding was taught on microcomputers to a combined grade 2 and 3 class in Malmo School, Edmonton, Alberta, through the Apple Centre for Innovation Project. Instruction was teacher-centered and started the second day of school. Students were taught for 30-minutes 4 days a week. One-minute timings were administered to compare their handwriting and typewriting speeds. The methodology was primarily qualitative. The results of this collaborative research project support the view that elementary students in grades 2 and 3 can learn to touch typewrite and use the computer as their "writing tool" in their language arts program.

Background

> My child has very much enjoyed her computer experience. My greatest concern is will she feel frustrated next year and in future years if she must return to pencil and paper writing. (a parent)

In 1987 Apple Canada Education Foundation (ACEF) awarded a project "Elementary School Integration of the Microcomputer into the Curriculum" to set up the Apple Centre for Innovation (ACI) in grade three in Malmo Elementary School, Edmonton, Alberta. The objectives were: (1) to develop, test, and disseminate computer-based curriculum material, (2) to create a working model for integrating the computer into the curriculum, addressing both organizational and content concerns, and (3) to conduct longitudinal research on a variety of topics related to the intensive use of computers in the classroom.

In Phase I materials were developed and tested to teach young children keyboarding in order to use the computer as a "writing tool." In Phase II computer integrated language arts units, novel studies, and data bases were developed for the language arts curriculum. In Phase III the project was signed on to the Apple Global Education Network (AGE) linking this grade three classroom to 15 Canadian cities, 25 states in the United States, 3 schools in Arabic countries, Tel Aviv, and most European countries.

Collaborative Research Project

A collaborative research project between the project director of the Malmo Apple Centre for Innovation and the business education professor in the Department of Secondary Education, University of Alberta, was designed for Phase I of the Malmo ACI.

> Imagine 26 seven- and eight-year old children in the second and third grades who are anxious, even elated to learn. Then imagine these same kid's siblings staying after school to get a chance to do what their younger brothers and sisters did during regular classroom hours (Putterman, 1988, p. 2).

Methodology

The methodology used in this research project was primarily qualitative. The keyboarding program was written and developed through participatory action research. The skill progress of the students was monitored by one-minute timed writings given at four different stages. The writing process was evaluated through the students' writing. The students were interviewed at the end of the school year. The parents were surveyed through a questionnaire. Pre- and post-tests were given in language arts for reading and writing and in mathematics for concepts and facts. Documentation included slides and the students' written work.

As the emphasis during the initial presentation of the keyboard was technique development, a teacher-directed, not software-driven, keyboarding program was developed. Thirty-minute lessons were taught four days a week from September to December by the business education professor. The grade three teacher assisted and observed the teaching methodology. Based on the feedback and findings of the first year, the keyboarding program was revised and retested by the business education professor during the second year. The grade three teacher developed the computer language arts units, novel studies, and data bases for the language arts curriculum. During the transitional phase of the first two years, the conditions in the classroom were constantly changing as new furniture was designed, additional computers were added, and a network was installed. During the first year, there was only one computer for every two students. These computers were placed on tables and the students sat on regular chairs with their feet dangling to the floor. Laminated keyboards were taped to other tables for the students who did not have access to a computer.

Within weeks, unattached Macintosh keyboards replaced the laminated keyboards.

By December furniture was designed and custom built so that students sat in satellite work areas. Each satellite was an octagon-shaped table with four computer wings. The furniture was built in three sizes to accommodate student height. Electrical wiring was installed to avoid all floor cords or floor to ceiling poles.

> I like the computer tables because we can slide the keyboard out and they have a desk beside the computer and it is fun. (Vinay, grade 3)

> I like the furniture very much because it belongs to our room and it is our desk that we sit and keep our working tools in it. (Judy, grade 2)

At the start of the second year of the project, the students still shared computers. Eventually the room was upgraded with a computer on every desk. Four students used each satellite as their regular desk turning to their computer which was on a wing to their left. Their computers were on and available whenever they wanted to use them during the day.

> I learned how to center things and use the computer with all my fingers instead of using only one finger. (Kim, grade 3)

> I like computers because they help you work faster and it is a lot neater. I like computers because your hands don't hurt as much as when you use a pencil. (Emma, grade 3)

During the 30-minute lesson, each student spent 15 minutes on a computer and 15 minutes on an unattached keyboard. The sequencing of introducing the alphabetic keyboard and the teaching methodology was found to be different than teaching junior or senior high school students.

The objective of the first three months of instruction was to teach, reinforce, and develop correct fingering, good technique, and speed. Accuracy and editing were not emphasized. Two new keys were introduced in a lesson. Every fourth lesson was a review. The introduction of the shift key was delayed although students typed words, phrases, and sentences beginning in lesson one. To provide for visual and oral learners, each lesson was teacher paced primarily through oral dictation as students read from the overhead screen. Although attention was given to technique development, the speed approach was used. The alphabetic keyboard was covered by lesson 25. Twenty additional lessons were taught for keyboard reinforcement and the introduction of basic language arts activities. The objective of the remaining months of the school year was to use to the computer as a "tool" in the writing process.

The Computer as a Writing Tool

Shortly after the alphabetic keys had been introduced, all students typed as fast or faster than they were handwriting. As soon as the alphabetic keyboard had been taught, the students used the computer as a creative writing tool. The first activity was a data base using the theme "All About Me." The students completed a survey about themselves indicating their birthdate, education, family, favourites, etc. This data was transferred to a large wall chart in the classroom. By using this chart, the students could manually search the data to answer a variety of questions. This information was also entered into the computer using a data base. The students could then ask the same questions by searching on the computer. The found that the computer was faster but would not tolerate their spelling errors. By using the wall chart under "my favourite animal," for example, they knew hores was really horse but the computer did not. They soon discovered the importance of correct spelling.

Automatic centering was used for poetry writing. The tab, delete, and backspace keys as well as selected special options were introduced during the writing process activities.

Cold Winter Air

In the cold winter air,
Among the trees so cold and bare,
The birds are flying south to
warmer air,
And not coming back till spring.

(Alexis, grade 3, December, 1988)

From January to June, the keyboarding program shifted to weekly review lessons. The computers were now used primarily for language arts and mathematics. The students developed their typing skill by writing, not by drill work. By the end of the year, students averaged 20-30 wpm on a one-minute timing with new material. Several students consistently typed over 40 wpm.

Parents were invited to "editing parties." Peer and teacher-student conferencing and editing took place directly from the screen display. At other times a draft was printed and conferencing and editing took place away from the computer. By midyear the students preferred composing at the computer to writing with pencil and paper. At various times senior citizens, student teachers, parents, and peers were involved in the editing process.

Flat Stanley Takes Out the Garbage

One day Stanley was taking out the garbage when he saw the garbage men. His Mother had told him that

she would not like it if everyone in the Mississippi knew that there was a walking breathing pancake living in the red house across the street from the CO-OP supermarket. So he curled up as tight as he could (it was so tight it looked like an old piece of paper) and he waited for something to happen.

The garbage men thought he was an old poster that had fallen out of the garbage can so they threw him in the trash compactor. It would have been the end of Stanley if he had not sneezed out loud KKCCHHOOUU!!! Then just as the compactor was closing one of the men yelled, "Gesundheit." The other stopped the compactor to see what was wrong with him.

Just then Stanley's parents came running (no one else sneezed like Stanley)! His parents kept yelling,

"Hey! Stop! That's my kid in there! Hey!"

"Mom, hay is for horses not for people," said Stanley.

(Laura, grade 3, January, 1989)

If a business teacher assists an elementary teacher in developing a typewriting/keyboarding program, it is not a matter of adapting a junior or senior high text or program to an elementary setting. It is **different**. The students are different. The focus of the program is different. The learning styles and instructional styles are different. The traditional business teacher must therefore start with a new mind set and work in collaboration with the elementary teacher. Together they can develop a program to meet the needs of young students. (Ubelacker, 1988)

The grade three teacher who was the project director and a collaborative researcher in this project has been awarded the Northern Telecom Award "in recognition of outstanding achievements in applying technology to education" in 1988 and the prestigious Marshall McLuhan Distinguished Teacher Award "for her innovative use of technology, creative teaching methods and contribution to communication in the classroom" in 1990.

The possibilities for using computers in the elementary schools are really untapped. The future is just beginning.

> ...But a computer isn't a bed of roses it makes mistakes just like you and me but you should know that a computer can do a lot more work than me or you. This whole wide gigantic world needs computers with them to do some work. But nobody said in this whole gigantic world that computers are the best. (Darren, grade 3)

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The author wishes to express her sincere appreciation to the students of Mrs. Gloria Cathcart's class. They contributed much to the project by providing their unedited material.

A Methodology Study Utilizing the Top 40 Misused Similar Words Based on a Ranking of the Top 75 Misused Similar Words Often Confused by Business Communication Students

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Abstract

This research was designed to establish a valid rank listing of misused similar words (MSW) and to determine the most effective method for teaching misused words. The rank listing was determined using 16 tests of sentences containing 238 MSW combinations. The three teaching methods analyzed were in-depth instruction with accompanying handout, no direct instruction but providing a handout, or no handout and no instruction. A rank listing of the top 75 words was identified and the top 40 words were used in the experimental study on teaching methods.

Introduction

Many students are weak in the area of English grammar regardless of the amount or kind of basic English writing instruction given in writing courses. One part of grammar, word choice, can present a communication problem for a reader when incorrect choices are made. Without knowledge of the correct word to use, the writer can send a message resulting in misinformation or misunderstood information. Because so many of these words exist, the instructor doesn't have the time to address all of them and needs to know the most productive way to teach these words. Therefore, the problem of Part I of this study was to determine a valid rank listing of misused, similar words (MSW) that are often confused by students enrolled in college business report writing and communication courses. In addition, effort was made to determine any relationships existing between selected student characteristics and competency in applying those words.

The problem of Part II was to identify effective teaching methodologies for the top 40 MSW identified through the rank listing research. The purpose of the study was to determine if there were differences in gains made among students who are taught using in-depth instruction with accompanying handout only, providing a handout only but no direct instruction, or no instruction or handout.

Procedures

Part I--The Rank Listing

For Part I of the study, frequently MSW were identified by the three researchers in independent searches through 19 business communication, business report writing, and basic English texts published within the last three years. Other published listings of such words were also examined for different words or combinations of words cited as causing problems for writers. Each word was recorded on a card with its defined meaning based on a dictionary definition. A resulting pool of 575 words were located after the card sets were compared and merged to eliminate duplicate words.

The researchers wrote two business-related sentences for each word in the MSW combination. These sentences were reviewed for intended meaning, clearness, and conciseness; and one sentence was chosen for each word in the combination. In reviewing the words and their dictionary definitions, the researchers found that some words were extremely close or synonymous in meaning, to the extent that appropriate business-oriented sentences could not be written; therefore, 58 words were dropped from the study, resulting in 517 usable words. When grouped, 238 combinations of MSW resulted with the number of words

for which sentences were written within each group varying from two to four.

The sentences were placed randomly on 16 tests using a multiple choice format, with each test containing only one of the sentences that were written for the words in any MSW combination. The 16 tests were pilot tested during the Summer of 1988 with three sections of Business Report Writing taught at Northern Illinois University. Minor revisions were made for purposes of clarity and understanding.

The sample consisted of 399 students. Juniors and seniors enrolled in Business Report Writing and Business Communication classes, as well as a graduate class in Business Communication, participated in the study during Fall Semester, 1988. Six instructors, including the three researchers, participated in the study.

Students completed a survey form that requested their names, social security numbers, ages, gender, class levels, majors, grade-point averages, and their perceptions of major influences on the development of their vocabulary.

Tests were administered weekly during the semester with a total of 16 tests being given. No discussion was made of the answers on any test, and no formal instruction of misused, similar words was given. Students who missed the test during class time were asked to complete the test in the department communication laboratory. At the end of the semester, the answer sheets were checked to determine which students had remained in the class the entire semester and had completed all 16 tests. Test sets for 353 students were usable.

A computer program was used that calculated the percent of time the students chose the incorrect word choice for each sentence. The results were that the researchers could rank the most to the least missed word combinations. Next, frequencies were measured for the students' perception of the major influences on their written business vocabulary. Finally, a one-way analysis of variance was used to statistically test (.05 level) whether or not any significant differences existed for the students' overall performance on the 16 tests. Differences were studied in terms of age, gender, class level, major, and grade-point average.

Part II--The Experiment

The experiment utilized a pretest-posttest design with the top 40 MSW and varied the type and extent of instruction. Six sections comprising three groups were chosen randomly from the Business Report Writing sections offered in Spring, 1990, at Northern Illinois University. Group 1, two sections taught by one instructor, was designated the control group and received no instruction concerning the 40 MSW. Group 2, two sections taught by a second instructor, was the first experimental group and received only a handout of definitions with no in-class discussion of the 40 MSW. Group 3, two sections taught by the researcher, was the second experimental group and received daily word drill and discussion and the same definition handout that Group 2 received.

The pretest and posttest sentences were randomly selected from the sentences written in the rank-listing identification study. The two tests consisted of 40 sentences each with only one of the word combinations used per test. The pretest was administered to all sections during the week of January 22, 1990. During the three-week experiment, students in Group 3 received classroom instruction on approximately 6 of the 40 MSW per class meeting. During the week of February 19, 1990, the posttest was administered in all six sections. Only data from students who took both the pretest and the posttest were used in the study. Students were awarded extra credit points as an incentive to participate in the study.

The sample of Part II--The Experiment was comprised of 130 business students. Group 1, the control group, had 33 students. Group 2, the first experimental group, had 49 students, while Group 3, the second experimental group, had 48 students. After the experiment was completed, the tests were scored to determine the total number correct for both the pretest and the posttest.

A one-way analysis of variance was conducted using the pretest scores to determine if the three groups were equivalent because intact groups were used. Mean scores for each group were calculated, gains from the pretest to the posttest were measured, and a one-way analysis of variance was conducted to determine any significant difference among groups at the .05 level.

Findings

The Rank Listing

In the rank-listing identification study all 238 word combinations were ranked, but only the top 75 MSW were of major importance to the researchers. The most frequently confused word combination was "anxious/eager." The correct use of "people/persons" was missed by 290 of the students, and "avert/avoid" was missed by 77 percent of the students. "Fortuitous/fortunate" was the next word pair most often confused. Of all 238 word combinations tested, the only grouping correctly identified by all 353 students was "fiscal/physical."

Students were asked to identify from a listing the five most major classes, events, activities, or people that they believed influenced the development of their written vocabulary. English classes were cited as either the highest-rated major influence or the second most important influence by three of

every five students (61.2 percent). Nearly nine of every ten students (87 percent) checked English classes as one of their five major influences. Formalized instruction was indicated as the choice for either first or second most major influence by 30.6 percent of the students. Additionally, when the highest two rankings of influence were combined, over one-fourth of the respondents acknowledged that written assignments as a part of class activity had been a major influence on their written vocabulary.

A one-way analysis of variance was conducted to determine if any significant differences existed in students' test performance at the .05 level of statistical significance based on age, gender, year in college, major in college, or grade-point average. Significant differences were found in comparisons of year in college, major in college, and grade-point average. Graduate students performed significantly better on the tests than did other students. Students majoring in Accounting and those classified as General Business students had more correct responses than did students in other departments. And, students with a 3.0 or higher (on a 4-point grading scale) grade-point average performed significantly better than did the students with an average of 2.99 or less.

The Experiment

In analyzing the data gathered, the following hypothesis was tested:

> No significant differences exist in gains made on a MSW posttest among Business Report Writing students who participate in one of the following groups: in-depth instruction with accompanying handout, no direct instruction but providing a handout, or no instruction or handout.

Equality of teaching method groups. Since intact classes were used, a one way analysis of variance was performed on the mean scores for the pretest to determine if any group was significantly different from another. The analysis yielded an F = .5627 which was less than 3.00, the critical value for F (.05) for 2 and 127 degrees of freedom. The groups were deemed sufficiently equal for the purposes of this study.

Gains achieved for groups. Gains per treatment group were also analyzed using a one-way analysis of variance. The analysis yielded an F = .0000 which was less than 3.00, the critical value for F (.05) for 2 and 127 degrees of freedom. Some significant gains on the posttest exist for the three groups; therefore, the hypothesis is rejected.

The post-hoc test, Tukey B, when applied at the .05 level to the gains for each group provided that the performance of Group 3, the experimental group using in-depth instruction with accompanying handout, was significantly different from the other groups. In addition, the performance of Group 2, the experimental group provided with a handout only, was significantly different from Group 1.

Conclusions

Based on the research provided in this paper, the following conclusions are made:

1. Some words identified as troublesome in the literature provide students with more difficulty in their application than do other words.

2. Students achieve the greatest learning gains on MSW through use of a definition handout and strenuous teaching. However, students using a definition handout only achieve greater learning gains than students who receive no instruction.

Implications

While the findings are not surprising, knowing which teaching methods are helpful is beneficial to instructors. By identifying the more commonly MSW and the beneficial teaching methods, instructors may choose to use the strenuous teaching with a definition handout or a definition handout only and know that their students will make gains in their understanding of correct word choice.

A Proposed Analysis of the Interactive Effects between Selected Learner Characteristics and the Method of Instruction--Lecture or Experiential Learning--on Student Cognitive, Communicative and Interpersonal Achievement in Elementary Accounting at the Undergraduate and Graduate College Level

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Abstract

This study will investigate a non-traditional instructional strategy in accounting education that may prove to be a positive response to widespread complaints that accounting graduates do not know how to communicate, do not reason logically, are deficient in interpersonal skills, and cannot think creatively. Recently, Baker, Simon, and Bazelli (1987) stated that the optimal teaching mode for accounting courses is the Experiential Learning Model (ELM), to be discussed shortly, since the approach accomodates the various learning styles of students while developing their communication, interpersonal, reasoning, and creativity skills. The purpose of this study will be to implement the ELM approach in Introductory Accounting Courses, as designed by Baker, Simon, and Bazelli (p. 222-5), at the graduate and undergraduate college levels. Specifically, this study will assess the progress of ELM students in the areas of communication and interpersonal skills, as well as, compare the cognitive achievement of the ELM students with those subjected to the traditional lecture approach.

Introduction

A special report by the American Accounting Association's (AAA) Committee on the Future Structure, Content and Scope of Accounting Education (1986) noted that accounting education has not made significant efforts to improve its teaching methods over the last 50 years despite widespread complaints that accounting graduates do not know how to communicate, do not reason logically, are deficient in interpersonal skills, and cannot think creatively.

Based on the current criticism of Accounting Education, Baker, Simon, and Bazelli (1987) conducted a study to select and design an instructional design for the optimal teaching mode (stimulus pattern sent to students) in the area of accounting, which addresses content coverage and self-development. Baker, Simon, and Bazelli (p. 216) stated that the optimal teaching mode for accounting courses is the Experiential Learning Model (ELM), to be discussed shortly, since the approach accomodates the learning styles of all students while developing their communication, interpersonal, reasoning, and creativity skills.

The experiential learning model is a four-stage learning cycle that individuals move through in order to effectively learn and apply concepts. For each major concept covered within a course, the cycle begins with concrete learning experiences, moves to reflective experiences, is followed by abstract experiences, and ends with active experimentation experiences. The final objective of the learning experience is the ability to apply the concepts, utilizing small group dynamics, to the real-world experiences the students will face upon graduation. Thus, the student is gaining experiential knowledge of the world he or she will be participating in and acquiring the necessary life skills to be successful within that world.

Instructional Design for Accounting based on ELM by Baker, Simon, and Bazelli

The following are the six steps involved in the instructional design for Elementary Accounting based on the ELM as developed by Baker, Simon, and Bazelli (1987, p. 218):

Step 1-Group Formation:
Large classes need to be subdivided into study groups of five to eight students. Formation of groups can provide support for individual students who are having difficulty with a specific learning stage.

Step 2: Concrete Experience (CE)
During the Concrete Experience stage of the instructional cycle, the purpose is to present students with samples of objects, artifacts, behaviors, processes, or phenomena found in practice.

Step 3: Reflective Observation (RO)
After students have observed samples of the concepts, the concepts are proved deductively, expanded, and added to related concepts. The instructional method in this stage is usually the deductive lecture/discussion.

Step 4: Abstract Conceptualization (AC)
Students are now ready to enter the theory-building and problem-testing stage of the learning cycle. The most effective system of instruction for this stage is some form of problem solving laboratory environment.

Step 5: Active Experimentation (AE)
The learning process in this stage leads to the application of what has been learned to the practical problems as they would be encountered by practitioners. Role play and simulation gaming are excellent teaching methods for this stage.

Step 6: Evaluation
Evaluation instruments such as quizzes and tests are part of the feedback mechanism that the teacher uses to inform students of their progress in the learning environment. The evaluative instruments should include a variety of questions from each of the five steps as well as integrative questions involving all stages.

Baker, Simon, and Bazelli (1987) developed the six step instructional design for Elementary Accounting based on the ELM as a practical teaching strategy which addresses the weaknesses of the highly criticized "passive" lecture method presently being used in accounting education. They stated that the traditional lecture mode is outdated. Accountants today are expected to be dynamic multi-perspective business advisors and hence a more dynamic multiperspective instructional approach such as the ELM should be adopted. They further state, that since our post-secondary student population possesses varied learning styles, aptitudes, and attitudes, a multi-faceted instructional approach such as the ELM is required in order to maximize students' academic performance as well as their self-development in terms of communication, interpersonal, and creative thinking skills. My study will be undertaken to investigate the feasibility of introducing the experiential learning teaching method, as advanced by Kolb, in elementary accounting classes as suggested by Baker, Simon, and Bazelli. The ELM is a significant departure from the traditional lecture/discussion method and, due to its' multi-perspective teaching approach, satisfies the AAA Committee on the Future Structure, Content and Scope of Accounting Education recommendations. These recommendations involve the development of a broad-based multi-disciplinary orientation in accounting emphasizing adaptive competencies, interpersonal skills, creative thinking, and the training of accountants with "horizons that go beyond accounting" and "who can grow into the role of advisors to business". (Sloan, 1983, p. 59)

Purpose of the Study

The purpose of this study will be to implement the ELM approach in Introductory Accounting Courses, as designed by Baker, Simon, and Bazelli (p. 222-5), for select graduate and undergraduate classes at Fairleigh Dickinson and Rutgers Universities. Specifically, this study will assess the progress of ELM students in the areas of communication and interpersonal skills. as well as, to compare the cognitive achievement of the ELM students with those subjected to the traditional lecture approach. A recent DIALOG, ERIC, and AAA (American Accounting Association's database on research in Accounting Education) related literature search in this area proved negative.

Research Questions

1 - To what degree do cognitive achievement scores between the control (Lecture) and experimental (ELM) groups differ?

2 - To what degree do ELM students perceive their progress in communication and interpersonal skills?

3 - To what degree does a student's learning style, aptitude, sex, major, attitude towards accounting, prior accounting academic and work experience interact with the method of instruction to impact student cognitive achievement in an Introductory Accounting course?

4 - To what degree does a student's learning style interact with the learning style of the instructor to impact student cognitive achievement in an Introductory Accounting course?

Research Method

Sample Selection

The subjects will consist of approximately 140 undergraduate and 140 graduate students enrolled in four "intact" classes of an undergraduate Accounting Principles course at Fairleigh Dickinson University (FDU) and Rutgers University and four "intact" graduate level classes at FDU and Rutgers University during the Spring 1991 semester.

Data Collection

During the first two weeks of classes, the following instruments will be distributed to students to determine their select individual characteristics:

- Kolb's Learning Style Inventory
- Attitude Toward Accounting (Differential semantic scale)
- Demographic Information (Sex, Major, Aptitude, Prior Accounting Academic and Work experience)

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Participant Instructors will be required to complete the Kolb's Learning Style Inventory.

Experimental Design

Students in both the control and experimental groups will use the same or similar textbook, cover similar material, do similar homework assignments, and will be given the same three modular exams. An Instructors Manual outlining the Experiential Learning Teaching approach, suggested activities and evaluative instruments will be distributed and explained to participant instructors. In order to produce the Experiential Learning Cycle Instructors Manual, material from the following items, published by Prentice Hall (PH), McGraw-Hill (MH), and System Publications (SP) will be utilized with their permission:

- (PH) 1989 textbook entitled "Accounting" authored by Horngren and Harrison
- (PH) 1989 textbook entitled "Introduction to Management Accounting" authored by Horngren and Sudem
- (PH) 1989 "Video Tape Tutorial Activities" authored by Terry
- (PH) 1989 accounting practice set entitled "The Luggage Merchant" authored by Hearing
- (PH) 1989 "Accounting Test Bank" authored by Rockness and Skender
- (PH) 1989 "Ethic Cases in Business and Accounting" authored by Horngren and Harrison
- (PH) 1984 paperback entitled "Write to the Point" authored by Goodman
- (PH) 1989 "Spreadsheet Applications in Management Accounting" authored by Robertson and Peyvandi
- (PH) 1989 "Hypergraphics Training System" authored by Horngren and Harrison
- (PH) 1989 series of computerized cases for Managerial Accounting entitled "Like Magic" authored by Kole
- (SP) 1989 "Systems Understanding Aid for Financial Accounting" authored by Kieso, Arens, and Ward
- (MH)1965 textbook entitled "Social Psychology" authored by Backman and Secord

The ELM Instructors Manual will be reviewed for authenticity by Richard E. Baker, a Professor of Accounting at Northern Illinois University, who has done extensive research in the ELM area.

The ELM cases involving role play activities will be reviewed by Michael Goodman, a Professor of Communications at FDU, and Jacob Steinberg, a Professor of Social Psychology at FDU, to assure that interpersonal, oral and written communication skills will be addressed. Students will be required to evaluate their peers communication and interpersonal performances after each group presentation based on criteria recommended by Professors Goodman (1984) and Steinberg. Participant Instructors will be required to log average communication and interpersonal scores for each student. Near the end of the semester, students will be required to indicate on their course evaluations to what degree their communication and interpersonal skills were effected by the ELM activities.

The three modular exams will consist of a mixture of multiple choice questions, problems and cases addressing cognitive and written communication skills. The exams will be reviewed by Richard E. Baker, a Professor of Accounting at Northern Illinois University, and Peter Wilson, a Professor of Accounting at New York University, to assure that the following areas are addressed: (1) each traditional elementary accounting content objective; (2) each stage of the ELM; and (3) each of Bloom's (1956) Taxonomy of Educational Objectives in the cognitive domain.

Evaluation

The research questions/hypotheses will be evaluated using the following measures:

- ANOVA statistical tests at .05 significance levels will be used to determine whether cognitive achievement scores between the control (Lecture) and experimental (ELM) groups differ significantly.

- Specific questions on the Student Course Evaluation Survey (Likert Scale) forms will be used to determine whether ELM students perceived any progress in their communication and interpersonal skills attributable to the ELM activities.

- Multiple Regression Statistical Analysis will be used to determine whether a student's learning style, aptitude, sex, major, attitude towards accounting, prior accounting academic and work experience interact with the method of instruction to impact student cognitive achievement in an Introductory Accounting course.

- Multiple Regression Statistical Analysis will also be used to determine whether a student's learning style interacts with the learning style of the instructor to impact student cognitive achievement in an Introductory Accounting course.

Final Commentary

The ongoing conflict of whether teachers should stress product or process is addressed in this study. Can instructors teach students the technical matter of Accounting while developing their reasoning, communication, interpersonal and creativity skills? Perhaps the ELM approach to be implemented in this study will shed some light on this problem.

Incidentally, a copy of the ELM Instructors Manual and measurement instruments to be used in this study will be made available for review at the DPE Conference.

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Putting Writing Errors in Context

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Abstract

Business/government and junior/senior college members of the Association for Business Communication were surveyed to determine their reaction to grammar, style, or word choice errors in three contexts--a business letter, an electronic mail message, and a report. Analysis revealed that respondents were most tolerant of errors occurring in ELM and least tolerant of errors occurring in a report. When data from all respondents were analyzed, statistically significant differences were found to exist among media for eight of the errors. Fewer differences were found when responses from educators and practitioners were analyzed separately.

Background

A survey of the business communication literature of the past 10 to 15 years reveals that basic writing skills (grammar, punctuation, and mechanics) are viewed by business communication instructors and business professionals as being important (Warner, 1979; Vik, 1979; Stine and Skarzenski, 1979; Bennett and Olney, 1986), are perceived with only moderate importance by business graduates (Storms, 1983), and are receiving increasingly less coverage in business communication courses (Glassman and Farley, 1979; Stine and Skarzenski, 1979; Dorrell and Johnson, 1982; Merrier, 1988).

Business communication instructors have responded in several ways to the challenge of improving basic writing skills while also meeting other course goals. Among the techniques employed have been (1) brief units of instruction, (2) diagnostic tests supplemented by independent study, and (3) writing laboratories. Regardless of the method that is selected, students must be convinced that basic writing skills are important and that skill improvement is essential. Using testimonials is one approach to persuasion (Skarzenski and Stine, 1979); providing concrete data about how readers react to writing errors is another.

Hairston (1981) surveyed 101 individuals employed in a variety of professions by having them indicate the extent to which they were bothered by the usage errors in 65 researcher-constructed sentences. She learned that readers attached varying degrees of concern to different types of errors. Leonard and Gilsdorf (1990) surveyed executive vice presidents of large industrial or service firms and members of the Association for Business Communication to determine the distraction level of 45 questionable usage items. In addition to reinforcing the results of Hariston's work, Leonard and Gilsdorf learned that academics are more bothered by most errors than are business executives. This study builds on the work of these researchers by exploring how the medium of the message affects reader reaction to errors.

Purpose

The purpose of this study is to determine the extent to which the medium of a message affects a reader's reaction to errors in grammar, word choice, and style. Specifically, answers were sought to the following research questions:

1. To what degree are communication professionals and educators affected by errors in grammar, word choice, and style?

2. Does the context in which a grammar, word choice, or style error occurs influence communication professionals' and educators' attitudes toward those errors?

3. Are there significant differences between the way in which communication professionals and educators react to grammar, word choice, and style errors that occur in different contexts?

Procedures

A 20-item questionnaire was developed and mailed to 252 members of the Association for Business Communication (ABC). Half of the individuals surveyed were identified by the association as being affiliated with business/government; the other half were identified as being affiliated with a junior or a senior college. Names were randomly selected so that each educational level was represented in the sample in proportion to its representation in the educational category.

Each survey item contained one error in grammar, word choice, or style; these errors might be broadly defined as usage errors. The types of errors selected to be included in the questionnaire were representative of the types of errors made by business communication students. Respondents were asked to react to each statement as they would if they encountered it in three different document types--a letter from someone in another organization, an electronic mail message from someone in his/her organization, and a report. Educators were to assume that the report was written by a student intern; business/government respondents were to assume that the report was written by a management trainee. The reactions from which respondents could choose were: Unaffected, Moderately Bothered, and Strongly Disturbed. These verbal descriptions were coded as Unaffected=1, Moderately Bothered=3, and Strongly Disturbed=5. Respondents who didn't recognize the error in an item were asked to respond as though they were unaffected by the error.

Data were analyzed using the chi-square analysis and Friedman nonparametric test subprograms of SPSS-X, Release 3.0.

Findings/Discussion

Responses were received from 122 ABC members; 63 were business/government representatives and 59 were educators. Six surveys were returned as undeliverable or were incomplete; the overall response rate, therefore, was 50.8 percent.

Table 1 presents each of the error types included in the survey and the ranked level of disturbance for each in the three media--letter, electronic mail message, and report.

There was agreement among respondents--across all media types--about the three most and the three least disturbing errors. Respondents were most bothered by misuse of the pronoun "I" and by subject/verb disagreement (nonessential information distraction); they were least disturbed by verb tense, word choice (bring/take), and a parallelism error caused by the absence of a preposition in a compound. The low ranking for these errors might have been influenced by the fact that "Unaffected" was to be marked if respondents did not detect an error in an item.

TABLE 1
Disturbance Level Ranking by Media Type
(All Respondents)

Error	Media Type		
	Letter	ELM	Report
Incomplete sentence	16	17	16
Lack of parallel structure (compound gerund/participle)	6	7	6
Pronoun does not clearly identify antecedent	13	12	13
Pronoun and antecedent do not agree in number	9	8	8
Subject/Verb disagreement (nonessential information distractor)	3	3	3
Subject/Verb disagreement (inverted sentence)	11	9	12
Dangling modifier	5	4	5
Word Choice (its/it's)	4	5	4
Verb tense (was/is; ongoing condition)	20	20	20
Subject/Verb disagreement (collective noun)	8	10	9
Pronoun selection (I as object of verb)	1	1	1
Word choice (bring/take)	19	19	19
Word choice (gender bias)	14	11	14
Lack of parallel structure (preposition missing in compound)	18	18	18
Word choice (cliches)	10	13	11
Split infinitive	17	15	17
Pronoun selection (reflexive pronoun as object of preposition)	2	2	2
Verb mood (if I was/if I were)	7	6	7
Word choice (between/among)	15	14	15
Inappropriate modifier (real/really)	12	16	10

The Friedman nonparametric analysis revealed significant differences in the way respondents viewed the same error in different media contexts. Table 2 presents the results of the analysis.

TABLE 2
Differences Within Media
(All respondents; significant difference marked with an asterisk)

Item	Mean Rank** Letter	ELM	Report	Significance Level
Incomplete sentence	2.03	1.75	2.22	.0011*
Lack of parallel structure (compound gerund/participle)	2.05	1.82	2.13	.0416*
Pronoun does not clearly identify the antecedent	2.00	1.88	2.13	.1484
Pronoun and antecedent do not agree in number	1.91	1.95	2.14	.2427
Subject/verb disagreement (nonessential information distractor)	2.00	1.92	2.08	.4581
Subject/verb disagreement (inverted sentence)	2.04	1.83	2.14	.0495*
Dangling modifier	1.99	1.82	2.18	.0188*
Word choice (its/it's)	1.99	1.84	2.18	.0289*
Verb tense (was/is; ongoing condition)	1.99	1.93	2.09	.4525
Subject/verb disagreement (collective noun)	1.99	1.89	2.12	.2094
Pronoun selection (I as object of verb)	2.00	1.88	2.12	.1678
Word choice (bring/take)	2.03	1.89	2.09	.2711
Word choice (gender bias)	1.97	1.90	2.13	.1756
Lack of parallel structure (preposition missing in compound)	2.00	1.92	2.08	.4581
Word choice (cliches)	2.02	1.82	2.16	.0282*
Split infinitive	2.04	1.83	2.13	.0602
Pronoun selection (reflexive pronoun as object of preposition)	1.98	1.89	2.14	.1430
Verb mood (if I was/if I were)	2.02	1.90	2.09	.3300
Word choice (between/among)	1.96	1.85	2.19	.0259*
Inappropriate modifier (real/really)	2.02	1.78	2.20	.0052*

**Lower number represents lower rank

It is interesting to note that the pattern is identical in ALL cases--errors in ELM are always most tolerated; errors in reports are always least tolerated. These findings parallel the formality of the messages. By their very nature, electronic mail messages are informal; the content of the message takes precedence over the format of the message. Conversely, reports are often viewed as quite formal. A rigid format may be prescribed, and authors are expected to verify not only the content but also the mechanics of the document.

Other factors which may have influenced the results are the perceived "life" of the document and its audience. Messages transmitted via ELM may be viewed as fleeting; reports, on the other hand, may be considered the most long-lived documents. While the audience for a message generated in any of the three media types may be large, reports are probably viewed as having the broadest distribution, letters and ELM messages the narrowest.

When data for educators and practitioners were analyzed to determine whether differences existed in the way each viewed the same error in three contexts, fewer significant differences were found. For responses from educators, significant differences were noted among media for the item involving use of cliches ($p = .0397$) and for the item involving use of an inappropriate modifier ($p = .0127$). For responses from practitioners, a significant difference among media was noted for the incomplete sentence item ($p = .0189$). The pattern displayed when all responses were

considered was evident in each of these groups as well--respondents showed the greatest tolerance for errors in electronic mail messages and the least tolerance for errors in reports.

The chi-square analysis revealed that, as a group, educators reacted more strongly than did practitioners to a disagreement between a subject and its verb in ELM ($p = .0498$) and in a report ($p = .0165$); they also reacted more strongly to a split infinitive when it occurs in a report. No other significant differences were found.

Summary/Conclusions

It appears that respondents hold writers to a higher standard for usage in reports and letters than in electronic mail messages. Students should be aware of these differences. Students, however, must also be cautioned to view each message separately--to analyze its purpose and its audience. An electronic mail message to a colleague, for example, asking whether he/she is available to play racquetball after work is much different from an electronic mail message announcing and presenting the agenda for a meeting. Similarly, a memo report to one's supervisor might be viewed with a different standard than a formal report to be distributed to the organization's governing board or clients. In short, business communication students should make every effort to be sure that every document they create--regardless of the medium used to transmit it--uses correct grammar, style, and word choice.

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The Quality of Students' Work Experiences in Office and Marketing Occupations: School Supervised and Non-school Supervised

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Abstract

Increasingly, national groups are suggesting that experience in the work place should be integral to the education of all students. At the same time, large numbers of secondary students are already employed, many for more than 20 hours per week and most in jobs which do not have school connectedness. Of concern is the quality of those jobs and their effects on student workers. The research reported in this paper compared the quality of work experiences of students who participate in secondary-school marketing and office education cooperative education programs with students who work in similar types of jobs but who are not enrolled in such programs. The findings suggest that there is more difference between the jobs held by school supervised students enrolled in a marketing (MSSWE) or an office (OSSWE) cooperative education program than between the jobs held by supervised or non-school supervised students within an occupational area, marketing or office.

Theoretical Framework

During the past several years a number of national groups have expressed ideas similar to Dewey's (1916), that experience gained in the workplace should be integral to the education of all students (National Commission on the Reform of Secondary Education, 1973; National Commission on Secondary Vocational Education, 1986; National Panel on High School and Adolescent Education, 1976; President's Science Advisory Committee, 1973; National Academy of Education Task Force on Education and Employment, 1979; Carnegie Council on Policy Studies in Higher Education, 1979; William T. Grant Foundation on Work, Family and Citizenship, 1988). Cognitive psychologists (Resnick, 1987; Brown, Collins, and Duguid, 1989), who have examined the discontinuities between school and non-school settings, have suggested that some kind of "situated" learning (i.e., some form of work experience, integrated with courses in school) can teach skills and knowledge that are not learned in classrooms.

Proponents of work experience at the secondary level argue that such an experience will help students (a) become more employable by learning to learn on-the-job; (b) secure better and higher paying jobs than those not in such an experience; (c) stay in school longer by motivating them and, in some cases, by providing income; (d) better understand the intellectual content of academic subjects by making it more meaningful and relevant; and (e) become more socially and vocationally mature by increasing awareness of social and economic interdependencies and by developing self-concepts. This perspective is not without controversy. Opponents argue that there is a mounting body of evidence that suggests adolescent employment can have effects that are not desirable. Studies cited by Steinberg (1982) in his analyses of student jobs show that there are low rates on initiative taking and little formal instruction by work supervisors or co-workers. Students, he suggests, are rarely ever required to read, write, or use arithmetic skills on the job. The problem, he concludes, with the type of work performed by adolescents is that it: 1) does not demand a great deal cognitively; 2) does not strengthen the work ethic; and 3) does not lead to future employment. Others argue that work while attending school negatively affects grades, attendance, participation in school activities, and peer and family relationships.

Of special concern, then, is the quality of students' work experiences. If having a job during high school gives students a foothold in the labor market but takes time away from school work and does not teach much except a cynical attitude toward work (Greenberger & Steinberg, 1986), then the short-term payoff may not be worth the long-term cost. This kind of argument has been made before (Behn, et al., 1983; Timpane, et al., 1976). Greenberger and Steinberg (1986) did not test whether qualitative differences in the jobs held by students in their sample had any educational, attitudinal, or other consequences. Possibly the only previous study that has used longitudinal data to test whether qualitative aspects of students' jobs make a difference is by Stern and Nakata (1989). This study found that experience in jobs offering more opportunity to use and develop students' skills was, in fact, associated with less unemployment and higher wages in the years immediately after high school.

Although the longitudinal effect of qualitative differences in students' jobs remains virtually unstudied, there has been some research on adults, and this research does indicate that the quality of work experience can have pronounced effects on psychological development. Kohn and Schooler (1978, 1982) found that more complex work contributed, in par-

ticular, to development of "ideational flexibility" and "self-direction," each of which was measured by several indicators. Mortimer and Lorence (1979, also Lorence and Mortimer, 1981) found that autonomy on the job contributed to a greater degree of involvement in work, a more positive self-concept, and interest in work as a means of helping other people and obtaining intrinsic rewards. Subsequently, Mortimer and Finch (1986) reported that jobs offering more autonomy contributed to individuals' self-esteem.

These existing studies of post-school job quality and psychological development strengthen the supposition that the quality of jobs held by students is likely to have important consequences. It is possible that the quality of work is even more consequential for students than for adults, since attitudes and abilities may be more malleable when people are younger.

In the most part, there has been no school involvement in the work of the students that has been researched. School-based work experience programs are designed to provide school intervention throughout the student's work experience--identifying potential jobs, assisting in placement, developing a training plan, evaluating student performance and relating classroom study to activities on the job. Thus, supporters of these programs expect that students whose paid jobs are directly linked to their classroom work should find school more interesting, should learn more, become more productive, have better work attitudes, and should eventually get better jobs than students who are not enrolled in such programs. While the research does find that cooperative education students are relatively satisfied with school, there is no consistent evidence that they learn more, become more productive, or find better jobs (Leske and Persico, 1984). Failure to detect any differences may be a factor of the research design rather than the variables being studied. For example, lumping together of students from a variety of school-based work experience programs (i.e., cooperative education and work study) where the link between classroom instruction and experience on the job is less strong, lumping together students from a variety of cooperative education programs (e.g., health, agribusiness, office), short time perspective (only one or two years), lack of sufficient statistical control over other student-related variables, and lack of attention to the variation in the quality of cooperative education jobs, may tend to hide any differences. This study is an attempt to overcome at least some of these design weaknesses and provide better information on the quality of student work experiences in two occupational areas, marketing and office.

Objectives

The research reported in this paper was designed to compare the quality of work experiences of students who participate in secondary-school marketing and office education cooperative education programs with students who work in similar types of jobs but who are not enrolled in such programs. For the purposes of this study, indicators of a quality work experience have been identified as: use of basic academic skills on the job (reading, writing, mathematics); work complexity, autonomy, and variety; responsibility, decisionmaking and opportunity to think and problem solve on the job; work-related learning; amount of training and quality of supervision; and amount of contact with adult role models.

Procedures

The data analyzed and reported on in this paper are part of a larger five-year longitudinal study, Learning Through School-Based Work Experience Programs, funded through the National Center for Research in Vocational Education (NCRVE). The larger study was designed to answer a series of questions about school-supervised work experience programs centering on two major issues:

1. What effect does quality (and quantity) of work experience have on increasing desirable educational, economic, social, and psychological student outcomes?

2. How can a school arrange an environment to maximize the desirable effects of student work experience?

To respond to these and other related issues, a model of academic-social-career development was evolved from the literature. Drawing from the work of Greenberger and Steinberg (1986), Kohn (1969), Mortimer and Finch (1986), Wollack, et al. (1971), and others, a number of constructs that defined desirable outcomes were identified. The conceptual model that emerged included social and career maturity, academic attainment, the work environment, cognitive development, and job transition as dependent constructs. The nature of the school intervention, nature of the work environment, work autonomy/complexity, intensity of the work experience, and relatedness of instruction were identified as independent constructs along with student background characteristics.

Those constructs related to job quality are addressed in the preliminary analysis of a subsample of the first wave of data collection.

Data Sources

The data for this study were part of the baseline data collected during the 1988-89 academic year from a sample of secondary school students located at two sites. (An additional, and larger, sample of baseline data has been collected from four additional sites in 1989-90 but was not yet ready for analysis at the time of this paper.)

Site One. Site one is a large north-central industrial city, called "Midcity." Two Midcity senior high schools were included in the study. One is a magnet school specializing in business careers. The second is a magnet school specializing in technical and trade occupations. At the business magnet school all juniors and seniors were invited to participate (n=300). At the trade and technical magnet, a random sample of freshmen and seniors enrolled in classes that had members participating in the cooperative education program were invited to participate (n=400). Permission slips were returned and baseline questionnaires were completed by 350 students. Of these, 136 students were employed in jobs that were not part of a school program while 59 were enrolled in school-supervised jobs.

Site Two. The second site, called "Southvale," is a county school system that has four comprehensive high schools and a regional vocational center. A random sample of all students, grades 10, 11, and 12, was selected (n=830). Of that sample, 341 students returned permission slips and completed the base-line questionnaire. Of this number, 169 were employed in non-school supervised jobs and 42 were employed in school-supervised jobs.

The sample at each school included students who were participating in a variety of school-based work experience programs, students who were working but not in school supervised jobs, and non-working students. For information regarding the differences in students across sites the reader is referred to Stone, Stern, Hopkins and McMillion (1990) and Stern, Stone, Hopkins, and McMillion (in press).

Student data were collected in class using a series of seven questionnaires, one of which included an extensive set of questions about characteristics of their current jobs, whether school-supervised or not.

The analyses reported on in this study are based on a subsample of the sample described above. That is, only those students who were participating in office or marketing cooperative education programs or who were employed in office or marketing related jobs but not enrolled in a cooperative program at the time the baseline data were collected have been included in this analysis. Composition of this subsample is shown below:

Marketing occupation, school supervised (MSSWE)
N = 19
Marketing occupation, non-school supervised (MNSWE)
N = 66
Office occupation, school supervised (OSSWE)
N = 44
Office occupation, non-school supervised (ONSWE)
N = 17

Data Analysis

For this paper, comparisons are being made within and across occupational areas. First, the perspectives of the students within an occupation (school supervised or non-school supervised by type of program -- office or marketing) are being examined on the major constructs of interest: use of basic academic skills on the job (reading, writing, mathematics); work complexity, autonomy, and variety; responsibility, decisionmaking and opportunity to think and problem solve on the job, work-related learning, amount of training, quality of supervision, and amount of contact with adult role models. In a similar fashion, students from the two school supervised groups (MSSWE & OSSWE) are being compared on the same constructs to determine if there might be differences across occupations.

To make the comparisons, two types of analyses were undertaken. Several of the questions provided nominal data. The responses to these questions were analyzed using the cross-tabular procedure. The resulting chi-square statistics indicated if the pattern of observed responses differed from that which might be expected. In this way, differences in response patterns of the various groups were determined (MSSWE x MNSWE, OSSWE x ONSWE, MSSWE x OSSWE). For scaled variables t-tests were used to test for significant differences in these same groups.

Findings

The findings of this study, based on the data analyses conducted, are reported in the sections that follow. Information regarding types of jobs held by students, both supervised and non-supervised, and hours worked are presented first. Following that, findings are presented within a job-quality construct area. Because of the large number of variables and space constraints in this paper, variables for which statistically significant difference were not identified may not be reported. Further, since the research is exploratory in nature, the author has chosen to present findings at three levels of significance ($p \leq .10$, $p \leq .05$, $p \leq .01$) rather than the customary two.

Types of Jobs and Hours Worked

To better understand the types of jobs held by students, they were asked to report job titles and work duties. Categories of marketing and office jobs reported by employed students included the following:

Marketing Occupations (N = 85)	MSSW	MNSWE
Retail & other sales supervisors	-	3
Retail sales workers & cashiers	17	55
Street and door-to-door sales workers	2	8

Office Occupations (N = 61)	OSSWE	ONSWE
Secretaries, typists, word processors, receptionists, and general clerks	29	8
Records processing clerks: bookkeepers, payroll clerks, billing clerks, file and records clerks	9	3
Shipping/receiving clerks, stock clerks	1	-
Data-entry keyers	1	1
Postal clerks, mail carriers, messengers	-	2
Bank tellers	1	1
Other	3	2

Supervised and non-supervised students from each occupational area tended to report similar types of job titles. That is, most students employed in a sales and marketing position reported they were retail sales workers or cashiers. Most students employed in offices, either school supervised or non-school supervised, reported such job titles as secretary, typist, word processor, receptionist, or general office clerk. About 20 percent of the OSSWE students reported jobs as bookkeepers, payroll clerks, billing clerks, or file and records clerks.

Students enrolled in a marketing or office cooperative education program reported working more hours per week than students who were working in similar jobs but not enrolled in one of these programs. With the exception of ONSWE students, the average work week for employed students was more than 20 hours. MSSWE students ($\bar{x}=28.44$, $sd=7.03$) reported working significantly more hours ($p \leq .05$) than MNSWE students ($\bar{x}=21.98$, $sd=10.8$) and OSSWE students ($\bar{x}=22.07$, $sd=6.54$) reported working significantly more hours ($p \leq .01$) than ONSWE students ($\bar{x}=14.8$, $sd=9.09$). When school supervised students from the two occupations were compared, it was found that MSSWE students reported working significantly more hours ($p \leq .01$) than OSSWE students.

Use of Basic Academic Skills on the Job

Reading. Employed students were asked if they read on their jobs. Further, those students who reported that they read on the job were asked to indicate the type of reading done. Table 1 shows response patterns to this question by comparison groups. There were no differences in the response patterns of the MSSWE and MNSWE students. One difference was found in the response patterns of the OSSWE and ONSWE students with the OSSWE students reporting that they were more likely to "read job manuals" on the job than were the ONSWE students. When response patterns of the school supervised marketing students (MSSWE) and the school supervised office students (OSSWE) were compared, significant differences were found on three of the dimensions. OSSWE students were more likely to "read on the job", to "look up unfamiliar words," and to "read technical journals, reports, legal documents."

Math. Students were asked to report if they used math on the job. Again, as in the use of reading on job, respondents reporting that math was used on the job were asked to report how it was used. Response rates relative to these questions also can be found in Table 1. Ninety or more percent of the MSSWE (90%) and MNSWE (94%) students reported using math on the job while students working in offices reported somewhat lower percentages of use (OSSWE, 73%; ONSWE, 68.3%). There were no significant differences in the response patterns on this question when the intragroup and intergroup comparisons were undertaken. All students reported frequent use of math on the job to "add, subtract, multiply, divide, make change, simple measurements." MNSWE students were more likely to "add, . . ." than were MSSWE students. OSSWE students were more likely than MSSWE students to use math in this same way. A significantly higher proportion of ONSWE students reported that they "compute discounts, markups, selling prices" than did OSSWE students. Few students reported using math for "ratios, percents, decimals, fractions," to "calculate surface areas, volume, weight," or to "apply percentages, fractions, algebra, geometry to work problems."

Writing. Table 1 also displays data relative to the use of writing on the job. As can be seen, high percentages of students from all groups reported that they use writing on the job. Students who wrote were most likely to "print or write simple sentences" or to write "more than simple sentences, fill out forms." Few students, reported that they "write reports," or "write manuals, editorials, journals." Also, with the exception of OSSWE students, few students reported use of writing to "prepare reports, business letters, summaries using given format." More OSSWE than ONSWE students and more OSSWE than MSSWE students reported this type of writing activity. No differences were found on any of the other analyses of the writing on the job dimension.

Skills and Knowledge

Employed students were asked if their jobs provided them the opportunity to "practice what is learned in school." There were significant differences in the perceptions of the student groups on this dimension. MSSWE and OSSWE students reported greater opportunity than MNSWE and ONSWE students respectively to practice on the job what is learned in school. No difference was found in the opportunity reported by MSSWE and OSSWE students.

Participants were also asked about the students' opportunities to learn additional useful skills and knowledge on the job, to learn how to learn, and to improve basic skills." There was a significant difference, between OSSWE and ONSWE students on the dimension "job provides a chance to learn a lot of new things"; OSSWE students reported this opportunity more frequently (Table 2).

Table 1
Use of Basic Academic Skills on the Job

Job Dimension	Marketing MSSWE X MNSWE (N=85)		Office OSSWE X ONSWE (N=61)		SSWE Mktg x Off* (N=63)
	MSSWE (N=19)	MNSWE (N=66)	OSSWE (N=44)	ONSWE (N=17)	
	% YES	% YES	% YES	% YES	
Reading on job?	21	38	75	65	***
Compare words?	25	12	39	55	
Look up unfamiliar words?	0	8	52	27	*
Read safety rules or instructions?	50	48	30 *	36	
Read job manuals?	50	48	52	18	
Read technical journals, reports, legal documents?	0	32	55	27	*
Math on the job?	90	94	73	65	
+, -, x, ÷, make change, simple measurements?	77	97 ***	97	100	**
Use ratios, percents, decimals, fractions?	24	30	9	18	
Compute discounts, mark-ups, selling price?	71	64	21	64 ***	***
Calculate surface areas, volume, weight?	0	7	3	9	
Apply percentages, fractions, algebra, geometry to work problems?	18	15	9	18	
Writing on the job?	79	70	84	82	
Print or write simple sentences?	60	69	58	64	
Write more than simple sentences, fill out forms?	53	50	68	64	
Write reports?	7	20	8	14	
Prepare reports, business letters, summaries using given format?	7	11	50 *	21	***
Write manuals, editorials, journals?	0	9	5	7	

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Table 2
Opportunity to Use and Learn Skills and Knowledge

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off[a] (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Job provides chance to practice what is learned in school 1=not at all true; 4=very true	2.95	1.13	2.08	.97	***	2.96	1.09	2.29	.92	**	
Job provides chance to learn a lot of new things 1=not at all true; 4=very much true	3.21	.79	2.88	.89		3.22	.79	2.59	1.06	**	
Job has helped to learn how to learn 1=not at all; 4=a great deal	3.26	.81	2.94	.93		3.02	1.03	2.71	.77		
Job has improved basic skills 1=not at all; 4=a great deal	2.26	.87	2.42	1.10		2.42	1.06	2.76	.90		

[a]See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Challenge in the Job

Participants in the study were asked to indicate their perceptions as to the degree of challenge in the their jobs. OSSWE students reported a higher degree of challenge than did ONSWE students. When OSSWE students and MSSWE students were compared, OSSWE students reported a higher degree of challenge (Table 3).

Table 3
Degree of Challenge in the Job

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE MktgxOff[a] (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
How challenging? 1=very challenging; 4=not at all challenging	2.47	.84	2.42	.84		2.11	.75	2.76	.83	***	**

[a]See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Respondents also were asked to indicate the type of challenge in the job: mental, physical, both, or not challenging. A difference was found in the response patterns of the two office groups on this question; about 33 percent of the ONSWE students reported their jobs as "not challenging" compared to only 5 percent of the OSSWE students (Table 4).

Table 4
Type of Challenge

Job Dimension	Marketing MSSWE X MNSWE (N=85)		Office OSSWE X ONSWE (N=61)		SSWE Mktg x Off* (N=63)
	MSSWE (N=19)	MNSWE (N=66)	OSSWE (N=44)	ONSWE (N=17)	
	% YES	% YES	% YES	% YES	
Mainly Mental	17	27	42	31	
Mainly Physical	11	12	5	0	
Both Mental and Physical	67	52	49	38	
Not Challenging	6	9	5	31 **	

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Training on the Job

More than 80 percent of all employed students reported that they received training when they began their jobs. No differences were found on this job dimension in any of the group comparisons. Students were asked to report the number of hours of initial training they received. Student employees reported receiving between two and one-fourth and two and two-thirds hours of initial training from their respective employers. There was no difference in the amount of training reported within the two student groups, marketing and office. However, there was a difference ($p < .10$) in the amount of training reported by OSSWE (2.62 hours) and MSSWE (2.25 hours) students (Table 5). Students were also asked to report the purpose of their training and how it was delivered. More than 75 percent of all student workers reported they received training to "perform tasks unique to job," and a large number of students reported receiving training to "perform a wide range of related tasks." While no differences were found, it is interesting to note that between 12 and 27 percent of the employed students reported receiving training needed to "perform basic communication, math, and reading/writing activities required on the job" (Table 6).

Table 5
Amount of Training

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Number of hours beginning training (total)	2.25	.77	2.38	.56		2.62	.71	2.29	.73		*

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Most students reported being "taught by manager, supervisor, or co-worker." A higher percent of MNSWE than MSSWE students reported being taught in this way. Two differences were found in the intergroup (MSSWE X OSSWE) comparisons. The MSSWE students were more likely to have participated in an "orientation lecture/day" and to have used "films, slides, videos" than were the OSSWE students (Table 6).

Table 6
Purpose and Form of Training

Job Dimension	Marketing MSSWE X MNSWE (N=85)		Office OSSWE X ONSWE (N=61)		SSWE Mktg x Off[a] (N=63)
	MSSWE (N=19)	MNSWE (N=66)	OSSWE (N=44)	ONSWE (N=17)	
	% YES	% YES	% YES	% YES	
Training to:					
perform tasks unique to job	75	78	85	80	
perform a wide range of related tasks	50	44	56	33	
perform basic communication, math, and reading/ writing activities required on job	19	12	22	27	
Form of traing was:					
Orientation lecture/day	56	44	24	20	***
Regular classes	13	7	12	13	
Films, slides, videos	13	20	0	0	***
Manuals, written instructions	38	39	24	20	
Taught by manager, supervisor or co-worker?	81	95*	83	67	

[a]See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Work Autonomy, Responsibility, and Decisionmaking

Students were asked several questions relating to work autonomy, responsibility, and the opportunity to make decisions. When the responses of the two marketing groups (MSSWE x MNSWE) were compared, no differences were found. When the response patterns of the two office student groups (OSSWE X ONSWE) were compared, the OSSWE students reported more frequently that their "job has helped develop ability to follow directions"; "job has helped develop ability to take responsibility for own work"; and "job has helped develop ability to be on time." There was only one dimension on which there was a difference when the intergroup comparisons (MSSWE X OSSWE) were made. MSSWE students reported more frequently that the "job has helped develop the ability to take responsibility for own work."

As an aspect of job responsibility, student workers were asked to report the number of other workers they were asked to supervise. A very high percentage of workers in each group (MSSWE, 84%; MNSWE, 79%; OSSWE, 91%; ONSWE, 82%) reported they did not have responsibility for supervising other workers. No significant differences were found in various group response patterns on this variable (Table 7).

Table 7
Work Autonomy, Responsibility, and Decisionmaking

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Freedom to make decisions over what to do and how to do it 1=complete control; 5=almost no control	2.56	1.10	2.55	.83		2.71	1.04	3.12	.78		
Job has helped develop ability to follow directions 1=not at all; 4=a great deal	3.58	.84	3.29	.76		3.49	.79	3.06	1.09	*	
Job has helped develop ability to take responsibility for own work 1=not at all; 4=a great deal	4.00	0	3.79	.48		3.73	.54	3.41	1.00	*	**
Job has helped develop ability to set priorities 1=not at all; 4=a great deal	3.37	.76	3.17	.81		3.36	.77	3.12	.93		
Job has helped develop ability to make decisions 1=not at all; 4=a great deal	3.53	.84	3.20	.87		3.20	.79	3.12	.78		
Job has helped develop ability to be on time 1=not at all; 4=a great deal	3.79	.54	3.59	.74		3.60	.75	3.12	1.17	*	

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Supervision

When asked about the supervision provided them on the job, students replied at about the same rate to the three response options of "supervisor decides what to do and how to do it," "supervisor decides what to do," and supervisor "gives some freedom to decide what to do and how to do it." A few students reported that they were their "own bosses within general policies." No differences were found on these variables. Several questions related to student and supervisor relationships. MSSWE students reported more frequently than MNSWE students that they felt free to disagree with their supervisors. Also, MSSWE students were more willing to exhibit this behavior than were OSSWE students. While no differences were found between comparison groups, it is apparent that most students are treated fairly by their supervisors and that most supervisors are willing to listen to problems and help find solutions. Student workers, in general, feel that for them to do well, it is important that they do exactly as told (Table 8).

Opportunity to Think and Solve Problems

Respondents were asked if their jobs helped develop the ability to think and solve problems. MSSWE students reported that this was more likely to be true for their jobs than did MNSWE students. Respondents were also asked if they had the opportunity to think of new ways of doing things on their jobs and to problem solve. When the responses of the various student groups were compared, no differences were found (Table 9).

Table 8
Student and Supervisor Relationships

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Feel free to disagree with supervisor 1=very free; 4=not at all free	1.5	.73	1.97	.83	**	2.11	.75	1.81	.75		***
Important to do exactly as told 1=extremely important; 4=not important	1.75	.86	1.97	.77		1.53	.67	1.75	.68		
Supervisor treats me fairly 1=usually not; 4=all of the time	3.31	.95	3.40	.76		3.64	.61	3.56	.63		
Supervisor willing to listen 1=almost always; 5=never	1.56	.96	1.65	.89		1.55	.87	1.38	.81		

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Table 9
Opportunity to Think and Solve Problems

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Job has helped develop ability to think & solve problems 1=not at all true; 4=very much true	3.21	.63	2.82	.91	*	3.12	.59	2.88	.86		
Think of new ways to do things and problem solve 1=almost always; 5=never	2.89	1.18	2.77	1.12		3.09	.90	3.18	.88		

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Contact with People on the Job

Opportunity to work with adult role models has been identified as an indicator of quality in student jobs. Participants were asked to report the amount of time spent at work dealing with people generally and the amount of time at work spent with adults and other people in their own age group. Results of these analyses are presented in Table 10.

All students reported spending large amounts of time working with people generally. MSSWE students spend more time working with people than do OSSWE students. It is interesting to note that MSSWE students report more frequently than MNSWE students that they work with people in their own age group. When MSSWE and OSSWE workers are compared on this dimension, MSSWE workers are more likely to spend *time working with people about

the same age." Conversely, as would be expected, OSSWE workers are more likely to report more "time working with adults" than are MSSWE workers.

Participants were also asked if their jobs had "helped develop ability to get along with people" and "helped develop ability to communicate with others." No differences were found in the marketing intragroup (MSSWE X MNSWE) and marketing and office intergroup (MSSWE X OSSWE) comparisons. In the office intragroup comparison (OSSWE X ONSWE) the OSSWE workers reported more frequently that their jobs helped develop these abilities.

Table 10
Contact with People on the Job

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Time dealing with people 1=all of the time; 5=no time at all	1.21	.92	1.24	.58		2.38	1.28	2.00	1.17		***
Time working with adults 1=all of the time; 6=no time at all	1.89	.94	1.82	1.12		1.36	.80	1.59	.94		**
Time working with people about the same age 1=all of the time; 6=no time at all	2.21	1.13	3.12	1.65	**	3.89	2.12	4.29	1.90		***
Job has helped develop ability to get along with people 1=not at all; 4=a great deal	3.84	.50	3.76	.53		3.62	.65	3.18	1.01	**	
Job has helped develop ability to communicate with others 1=not at all; 4=a great deal	3.84	.69	3.71	.58		3.71	.55	3.35	.86	*	

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

Internal Motivation

To assess their motivation, students were asked how willing they were to do more than the minimum amount of work required on the job. A fairly high degree of student interest in doing more than was required was reported by all groups of student workers. OSSWE workers indicated a higher degree of willingness to do more than required than did ONSWE students. Students were also asked if their jobs had helped them develop the ability to strive to do well. MSSWE students, when compared to MNSWE students, were more likely to report that their jobs had helped them develop this ability. MSSWE students were also more likely than OSSWE students to report this perception (Table 11).

Discussion

The information presented in the findings section of this paper suggest that there is more difference between the jobs held by school supervised students enrolled in a marketing (MSSWE) or an Office (OSSWE) cooperative education program than between the jobs held by supervised or non-school supervised students within an occupational area, marketing or office, when using such job-quality indicators as use of basic academic skills on the job (reading, writing, mathematics); work complexity, autonomy, and variety; responsibility, decisionmaking and opportunity to think and problem solve on the job; work-related learning; amount of training and quality of supervision; and amount of contact with adult role models.

Table 11
Internal Motivation

Job Dimension	Marketing MSSWE X MNSWE (N=85)					Office OSSWE X ONSWE (N=61)					SSWE Mktg x Off* (N=63)
	MSSWE (N=19)		MNSWE (N=66)		Sig	OSSWE (N=45)		ONSWE (N=17)		Sig	Sig
	x	sd	x	sd		x	sd	x	sd		
Interested enough in job to do more than minimum work required 1=never; 5=almost always	3.37	1.12	3.29	1.05		3.72	.80	3.24	.90	**	
Job has helped develop ability to strive to do well 1=not at all; 4=a great deal	3.68	.75	3.29	.76	*	3.33	.71	3.29	.77		*

*See previous columns for appropriate response rates.
(*) $p \leq .10$; (**) $p \leq .05$; (***) $p \leq .01$

In the use of basic academic skills, high percentages of all employed students, supervised or non-supervised, reported use of math and writing on the job. No differences were found when comparing the response patterns of MSSWE students with MNSWE students in the reading and writing dimensions. OSSWE students were more likely than ONSWE students to read job manuals and to prepare reports, business letters, and summaries using a given format. ONSWE students were more likely than OSSWE students to use math for the special purpose of computing discounts, markups, and selling prices. Perhaps, even though job titles reported by the two groups of office workers are similar, job duties of the ONSWE students are different. Further examination of these duties may be worthwhile. When response patterns of MSSWE and OSSWE students were compared, OSSWE students were more likely to read and use math on the job. They more frequently look up unfamiliar words, read technical journals, reports, & legal documents, and prepare reports and business letters from a given format.

A high percentage of respondents reported that their jobs have helped them to learn how to learn. School-supervised students, both MSSWE and OSSWE, reported more frequently than their respective comparison groups the opportunity to practice what is learned in school. OSSWE students also reported more frequently than their counterparts (ONSWE) that they had the opportunity to learn new things. OSSWE students reported their jobs as more challenging than did ONSWE and MSSWE students. A fairly high percentage of ONSWE students viewed their jobs as not challenging.

While the amount of initial training provided to any of the groups of employed students was quite low (2 1/4 to 2 2/3 hours), OSSWE students did report receiving significantly more training than MSSWE students. Again, this may be a factor of the job duties and level of position and further examination is warranted. Employed students, in general, reported that their jobs helped develop the ability to follow directions, take responsibility for their own work, set their priorities, make decisions, and be on time. On a number of these dimensions OSSWE students reported their jobs helped them develop these responsibility-related characteristics. MSSWE students reported more frequently than OSSWE students that their jobs have helped them develop the ability to take responsibility for their own work.

As might be expected, students employed in sales and marketing positions spend more time dealing with people than do students employed in office positions. However, students employed as office workers are more likely to work with adults while students employed as sales and marketing workers are more likely to work with people about the same age. Students in all groups feel that their jobs have helped them develop their abilities to get along and communicate with people.

Differences were not found on a number of individual dimensions included as components of the job-quality constructs. For that reason indices of job quality that will factor in the various questions included for each quality construct are being developed. Additional analyses will be undertaken using the indices rather than the raw scores. The additional baseline data collected are being added to the data base and analyses similar to those completed for this study and those using the job-quality indices will be undertaken on the larger data base. Analyses that compare jobs of students in other occupational areas (trade and industry,

agriculture) with those of the business and marketing occupations are also being considered. A logical next step would be to do in-depth observations and interviews with employed students and their employers to secure greater detail relative to the actual application of the job-quality constructs identified in the paper.

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Student Attitudes Toward Male and Female Work Roles

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Abstract

This study was designed to determine whether secondary students hold traditional attitudes toward male and female work roles and whether educational equity materials can provide a learning experience that will change traditional attitudes held by students to contemporary attitudes.

Students from 13 North Dakota schools completed an attitude assessment to determine their attitudes. Following this pre-assessment, educational equity materials were taught for three class periods. A post-assessment of student attitudes was then administered.

The pre-assessment indicated that 42 percent of the students held traditional attitudes. The pre- to post-assessments indicated that educational equity materials provided learning experiences that changed traditional attitudes.

Introduction

"Women continue to stream into the work force. Between now and the year 2000, almost two-thirds of new entrants into the work force will be women, according to a U.S. Department of Labor study" (Schultz, 1989, p. 34). Research indicates that these women face problems based on sex-role stereotyping when they enter the work force. It is well documented that women work in female-intensive occupations which pay lower salaries than men earn in male-intensive occupations. "In 1987, women of all races working full-time, year-round earned 65 cents for every dollar earned by white men; . . . a 1987 Census Bureau study found that 17 to 30 percent of the wage gap is due to the 'overrepresentation' of women in certain occupations; i.e., the more women in a job or a profession, the lower the pay (Schreiber, 1989, p. 6).

Male and female students hold many of the traditional attitudes that perpetuate the breadwinner model (working father, housewife mother, and two children). Yet, government statistics indicate that very few of these students will be living in that traditional breadwinner family setting. "In more than one-half of all American marriages today, both husband and wife work outside the home" (Schultz, 1989, p. 34). As reported by Couch (1989, p. 24), "Women now represent 44 percent of all workers, and recent projections indicate that by the mid-1990s, half of the work force will be female."

Traditional attitudes have undoubtedly played a major role in keeping women in lower paying, less prestigious careers. And it is not only males who believe that women are best suited for the careers that require nurturing and caring, and that women in general do not possess the characteristics necessary to become effective leaders. These beliefs are based upon myths which have been perpetuated for many years. However, after eight years' of research, "Researchers at the Center for Creative Leadership concluded that when careers are matched, women and men are notably similar in their characteristics, motives, and abilities, but that expectations of each are different due to stereotypic perceptions. The environment which forms the context for male and female roles breeds the disparity in expectations" (Curcio, Morsink, and Bridges, 1989, p. 153).

Walch (1980) in her dissertation, *Utah High School Sophomore Attitudes Toward Women's Roles and Non-Traditional Vocational Career Choices*, found a significant difference in overall student attitudes toward women's roles and non-traditional vocational career choices. Since her study was limited to sophomores in high school, Walch recommended that similar studies by conducted to compare student attitudes by grade level. . . and that educational equity materials aimed at reducing sex bias and sex stereotyping in educational programs and expanding student life choices be developed and tested experimentally within the schools.

Problem

The problem of this study was to determine whether male and female students at various grade levels have traditional attitudes toward male and female work roles and whether classroom materials designed for educational equity can change traditional attitudes, when they exist, to contemporary attitudes.

Purpose

The purpose of this study was to gather information relating to student attitudes toward male and female work roles and to the use of sex equity materials in their curricula to help students better understand the nature of male and female work roles. The information gathered should be useful in reducing misconceptions and inequalities based on sex stereotypes in the work force.

Null Hypotheses

This study was designed to test the following null hypotheses:

1. There is no significant difference in student attitudes toward male and female work roles as measured by the pre- and post-assessment, when students are provided learning experiences using educational equity materials.

2. There is no significant difference in student attitudes toward male and female work roles, based on gender, as measured by the pre-and post-assessment, when students are provided learning experiences using educational equity materials.

3. There is no significant difference in student attitudes toward male and female work roles, based on grade level, as measured by the pre- and post-assessment, when students are provided learning experiences using educational equity materials.

Procedures

This study required the completion of the following steps: (1) development of an assessment instrument to measure student attitudes; (2) identification of participants; (3) determination of educational equity materials for the treatment; and (4) analysis of data.

Development of Assessment Instrument

An assessment instrument was developed by selecting twenty statements from an attitude assessment used by Walch (1980) in her dissertation. Walch's assessment instrument consisted of 60 statements with a Likert-type scale with six choices provided from strongly agree to strongly disagree. For this study, a more concise instrument was needed to allow the two administrations of the assessment instrument and the treatment to be completed during three class periods. This study was designed for use with business students; therefore, 16 statements in Walch's assessment instrument which related to other vocational areas were eliminated. A review of the remaining 44 statements found that in several instances three or four statements measured the same concept; therefore, only one statement was selected to measure each of the concepts represented.

The State Coordinator for Educational Equity, the State Supervisor for Office Education, and three business teachers served as a panel of experts to judge the validity of the 20-statement assessment instrument. They concurred that the instrument was valid for its intended purpose.

Identification of Participants

Fifteen North Dakota high schools were selected to provide representation from both rural and city school districts. Business education teachers in the fifteen selected high schools were contacted to secure their cooperation in administering this study; thirteen of them agreed to participate providing a sample population of 346 students. The size of the participating schools ranged from 1,321 to 116 students enrolled in grades 9-12.

Determination of Materials

Each of the vocational business education teachers in North Dakota had received a copy of *Maximizing Options for Students in Business* (Deutsch, Gassman, and Weiss, 1984) from the State Supervisor of Office Education and the North Dakota State Board for Vocational Education. It had been revised from material developed specifically for educational equity by the Wisconsin Department of Public Instruction, Division for Instructional Services, Bureau for Vocational Education. Module III - "Men and Women in the Workforce: Myth and Reality" included instructional materials covering societal attitudes about men and women, sex stereotypes, and sexism, particularly in the business setting; and was designed to be presented in three class periods.

Module III in the instructor's manual provided the rationale, five objectives, copies of the four handouts for students, sixteen transparency masters, step-by-step instructions for how to use the handouts and transparencies, and the important concepts to discuss with each of them.

Treatment

A letter containing detailed instructions on how to conduct the study was sent to each teacher, along with the appropriate number of assessment instruments and computer answer sheets. The teachers were instructed to:

1. administer the pre-assessment instrument,
2. present the materials in Module III in Maximizing Options for Students in Business following the step-by-step instructions identified in the instructor's manual for each activity, and
3. administer the post-assessment instrument.

During the same class period, for three consecutive days, the teachers introduced the concepts through lectures using the Module III transparencies; the students participated in class discussions, which evolved from the handouts they completed, and the students participated in small group activities.

Analysis of Data

The sample population consisted of 346 students from 13 high schools in North Dakota. Pre- and post-assessments were collected for 301 of these students. A Likert-type scale was used with six choices provided from strongly agree to strongly disagree. Fourteen statements were coded by assigning a numerical value from 0 to 5, corresponding with strongly agree to strongly disagree respectively; the remaining six statements were coded in the reverse order with strongly disagree to strongly agree assigned values 0 to 5, respectively. The students were not aware of the coding or the numerical value.

The data was analyzed by using the SPSS package to compute frequency distributions for each item on the assessment instrument and to calculate t-test values for the entire sample, for males, for females, and for each grade level.

Findings

The analysis of the frequency distributions for the pre-assessment indicated that a majority of the students had contemporary attitudes. For all but one of the statements, over 58 percent agreed with the statements with which agreement indicated a contemporary attitude and disagreed with the statements with which disagreement indicated a contemporary attitude. However, the other 42 percent had traditional attitudes. Table 1 shows the frequency distribution by the percentage of students choosing each of the categories for each statement on the pre- and post-assessments.

The analysis of the frequency distributions for the post-assessment showed that for all but three of the statements, a higher percentage of students had contemporary attitudes after the treatment. The greatest change (11 percent) was found for Statement 1: 59.3 percent were in the disagree categories on the pre-assessment while 70.3 percent were in the disagree categories on the post-assessment.

To determine whether significant differences in attitudes existed before and after the treatment, t-test values were calculated. The t-tests for each of the 20 statements revealed that the change in attitude was significant at the 0.05 level or higher for nine of the statements. The change from pre- to post-assessment was not significant for some statements because the majority of the students already had contemporary attitudes, as reflected by those statements, on the pre-assessment. For example, on the pre-assessment 94 percent and on the post-assessment 97 percent strongly agreed, moderately agreed, or agreed with the statement, "Men and women should be paid the same money if they do the same work."

Table 1
Frequency Distribution for Attitude Statements

Codes: SA = Strongly Agree, MA = Moderately Agree, A = Agree, D = Disagree, MD = Moderately Disagree, SD = Strongly Disagree

Statement	%SA	%MA	%A	%D	%MD	%SD
1. The man should be the achiever and worker in the household while the woman takes responsibility for the home and family.	7.4 7.0	14.1 10.3	19.1 12.0	16.4 16.3	17.1 15.3	25.8* 38.7**
2. Women have less control over their emotions than men do.	13.4 11.3	18.8 15.6	26.5 25.2	13.8 15.3	9.7 15.3	17.8 16.9
3. The husband should take primary responsibility for major family decisions such as the purchase of a home or car.	8.4 6.0	11.7 13.0	18.8 13.3	14.8 20.3	13.4 13.0	32.9 34.6
4. Women tend to think of employment as a job rather than a long-term career.	5.0 2.3	16.1 13.6	19.1 22.3	25.2 23.3	19.5 21.9	15.1 16.6

(table continues)

Statement	%SA	%MA	%A	%D	%MD	%SD
5. Men are better bosses than women in working situations.	8.8 5.0	11.8 8.6	11.8 11.3	17.5 17.3	16.8 18.3	33.3 39.2
6. Marriage is a partnership in which the wife and husband should share the economic responsibility of supporting the family.	57.9 60.8	18.9 14.0	14.1 15.6	6.7 4.7	1.7 2.7	0.7 2.3
7. A woman should not accept a career promotion if it would require her family to move and husband to find another job.	10.4 7.3	12.8 10.6	18.1 21.9	26.8 24.9	20.8 19.6	10.7 15.6
8. A woman should have exactly the same job opportunities as a man.	59.7 67.8	15.8 12.3	10.4 11.0	5.7 4.7	3.0 1.0	5.4 3.3
9. It is more important for a wife to help her husband's career then to have a career herself.	3.4 3.0	7.7 5.6	12.1 13.3	26.8 22.9	18.1 20.6	31.9 34.2
10. The saying that "A woman's place is in the home" is still basically true and should remain true.	4.4 4.3	5.4 4.7	5.7 3.6	16.1 15.9	19.1 12.6	48.7* 55.5**
11. It is better to have a man as a supervisor of a department composed of both men and women employees.	8.1 6.0	9.7 8.6	17.4 13.0	19.8 21.6	18.8 17.3	26.2 33.6
12. A married woman with children should work only if her income is necessary to support the family.	16.4 11.3	11.4 13.0	14.1 17.3	22.5 20.3	21.8 19.6	13.8 18.6
13. Men tend to dislike intelligent women.	6.0 8.3	14.4 13.3	12.8 16.7	21.5 22.7	16.4 16.0	28.9 23.0
14. Men and women should be paid the same money if they do the same work.	81.7	5.4 8.0	7.0 7.3	2.7 2.0	1.3 0.7	1.7 0.3
15. Women seem to be naturally less capable of logical and scientific thinking than men.	3.0 0.7	3.7 6.6	8.4 5.6	15.1 12.0	13.4 14.6	56.4 60.5
16. Men should help in getting the household tasks completed such as doing the laundry or washing the dishes.	44.0 52.5	28.9 19.6	11.4 16.3	6.4 5.0	3.7 4.0	5.7 2.7
17. A male student and a female student are equally qualified for a certain scholarship; it should be awarded to the male student on grounds that he has greater "career potential."	3.0 3.3	4.0 3.0	6.4 6.3	10.1 12.6	7.1 9.3	69.4 65.4

(table continues)

Statement	%SA	%MA	%A	%D	%MD	%SD
18. Women do not deserve the same pay as men because they are less reliable workers.	2.7 0.7	1.3 2.0	1.3 3.0	7.7 11.0	8.7 8.0	78.2 75.4
19. A husband should not feel uncomfortable if his wife earns a larger salary than he does.	32.6 37.5	24.2 19.6	25.8 25.9	7.7 8.6	5.0 4.7	4.7 3.3
20. Women should be prepared to support themselves financially.	66.8 74.0	14.1 12.3	14.4 10.0	2.0 1.0	1.7 2.0	1.0 0.7

*The percentage in the first row for each item represents the pre-assessment.
**The percentage in the second row for each item represents the post-assessment.

Table 2 shows the results of the t-test for the total sample. The change in student attitudes from pre- to post-assessment was significant at the 0.0001 level. Therefore, the null hypotheses, there is no significant difference in student attitudes toward male and female work roles as measured by the pre- and post-assessment, was rejected.

Table 2
t-Test Results for Total Sample

Variable	N	Mean	Standard Error	Standard Deviation	Degrees of Freedom	T-Value	2-Tail Prob.
pre-assessment	301	70.7193	0.906	9.932	300	-4.89	0.000
post-assessment		73.5166	0.915				

Table 3 shows the results of the t-tests by gender. One student indicated male on the pre-assessment and female on the post-assessment; therefore, the computer did not include that student in the results of these two t-tests. The change in attitudes of the male students was significant at the 0.05 level. For the female students the change in attitude was significant at the 0.0001 level. Therefore, the null hypothesis, there is no significant difference in student attitudes toward male and female work roles, based on gender, as measured by the pre- and post-assessment, was rejected for both males and females.

Table 3
t-Test Results by Gender

Variable	N	Mean	Standard Error	Standard Deviation	Degrees of Freedom	T-Value	2-Tail Prob.
Males							
pre-assessment	70	56.7286	2.006	12.943	69	-2.23	0.029
post-assessment		60.1714	2.093				
Females							
pre-assessment	230	75.0283	0.834	8.855	229	-4.41	0.000
post-assessment		77.6022	0.851				

Table 4 shows the results of the t-tests by grade level. The change in student attitudes was significant at the 0.01 level for the ninth and eleventh grades; and at the 0.05 level for the tenth and twelfth grade. Therefore, the null hypothesis, there is no significant difference in student attitudes toward male and female work roles, based on grade level, as measured by the pre- and post-assessment, was rejected for all four grade levels.

Table 4
t-Test Results by Grade Level

Variable	N	Mean	Standard Error	Standard Deviation	Degrees of Freedom	T-Value	2-Tail Prob.
9th Grade							
pre-assessment	32	69.5313	3.135	12.479	31	-2.78	0.009
post-assessment		75.6563	2.762				
10th Grade							
pre-assessment	42	68.4286	2.445	9.338	41	-2.18	0.035
post-assessment		71.5714	2.765				
11th Grade							
pre-assessment	80	68.0875	1.913	11.238	79	-3.11	0.003
post-assessment		71.9938	1.854				
12th Grade							
pre-assessment	147	73.2959	1.155	8.659	146	-2.39	0.018
post-assessment		75.0000	1.214				

Conclusions

The findings of this study support the following conclusions:

1. Although many secondary students have contemporary attitudes, almost half of the students still have traditional attitudes. Students entering the work force with traditional attitudes are likely to perpetuate the traditional sex roles and sex stereotypes which have been found to be detrimental to both males and females.

2. Providing students with learning experiences using educational equity materials changes their traditional attitudes to contemporary attitudes. Students who are provided these learning experiences will enter the work force better equipped to implement changes in the traditional sex roles and sex stereotypes as they advance in their business careers.

3. Both males and females, whether they indicated traditional or contemporary attitudes before the treatment, displayed more contemporary attitudes after participating in classroom activities using educational equity materials. Finding that educational equity materials help students develop more contemporary attitudes is encouraging since it is vital that males and females work together to ensure equality in the work force.

4. The attitudes of secondary students can be changed to reflect more contemporary attitudes by exposing the students to information about the male and female work roles as they currently exist in society. The development of contemporary attitudes in the students of today will provide society with future employers and employees with contemporary perceptions of the male and female work roles. This should greatly increase the probability that traditional sex roles and sex stereotypes will be used less frequently to influence business decisions.

Recommendations

Based on the findings of this study, it is recommended that:

1. Teachers incorporate educational equity materials into their courses to provide students the opportunity to become more aware of male and female work roles and the negative effects of traditional sex roles and sex stereotypes.

2. This study be replicated in several urban communities to determine whether there is a difference in student attitudes between rural and urban students.

3. Further experimental research be conducted to determine the grade level at which the use of educational equity materials has the greatest impact.

4. Further experimental research be conducted to determine if other educational equity materials would produce the same results.

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A Study of the Career Development and Aspirations of Women in Middle Level Management Positions in Business Firms

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Abstract

The major goal of this study was to determine the career development and aspirations of women in middle level management positions in business firms. The major method of this research study was the individual case study. Case studies relied on face-to-face interviews with a sample of 30 women in middle level management positions in 15 Fortune 500 companies. The findings of the study revealed the factors most pertinent to the women managers' success. In addition, the barriers that hindered the career development of the women managers were identified. The findings also revealed that the majority of the study participants ultimately aspire to attain top level management positions, and they believe it is either very realistic or somewhat realistic that they will acquire these positions.

Introduction

The number of women seeking management positions is increasing as a function of their greater participation in the labor force, expanded access to educational and employment opportunities, and affirmative action programs. According to the U.S. Bureau of Labor Statistics (1989), more than 60 percent of all women over sixteen work, and, or women in the age range 25 to 54, nearly 73 percent work. Women now constitute more than 50 percent of the American work force. "The influx," says David Bloom, a Harvard University economist, "is the single most important change that we've ever experienced in the American labor market" (Bradley, 1987). The trends indicate that, through 1995, the majority of the 25 million new entrants into the job market will be women (Raynolds, 1987).

Although opportunities for women have increased substantially in recent years, there are still a great many barriers and the unanswered question of why so few women reach senior management level positions in business firms. In 1986, of 1,362 senior corporate executives surveyed by Korn/Ferry International, an executive search firm, only two percent, or twenty-nine, were women (Brophy & Linnon, 1987). Although women hold roughly 38 percent of executive, administrative, and managerial jobs, they are largely in the entry and middle ranks (U.S. Bureau of Labor Statistics, 1989). Middle manager for the purpose of this study is defined as, "the group of managers extending from top management down to those immediately above first-line management. They implement the strategies or policies set by top managers and coordinate the work of lower-level managers" (Van Fleet, 1988).

The literature hold plenty of evidence that women have an easier, faster start on their career now than they did in the past. The problem is that getting women into corporations is not the same as moving them up. But are women now in the mid-level management pipeline aspiring to become senior level managers? And if they are aspiring to become senior level managers, are they aware of barriers they will encounter and the sacrifices required to reach the top ranks of management? Do they know what action they will have to take in order to attain a senior level management position? These are questions that guided this study.

Purpose of Study

The overall purpose of this study was to examine the career development and aspirations of women in middle level management positions in business firms. The purpose of this study led to the formulation of the following major research questions:

1. What is the educational background of women in middle level management positions?
2. What is the work history of women in middle level management positions?
3. What factors have assisted the career development/ progression of women in middle level management positions?
4. What barriers/hindrances have women encountered in achieving middle level management positions?
5. What are the career goals and aspirations of women in middle level management positions?
6. What barriers/hindrances do women in middle level management positions think they will encounter in trying to attain the positions to which they ultimately aspire?

7. What actions do women in middle level management positions think they will have to take in order to attain the positions to which they ultimately aspire?

Background information was also collected to aid in describing the sample of the study,

Methodology

The major method of this research study was the individual case study. Case studies relied on face-to-face interviews with a sample of middle managers.

Instrument

An interview schedule was developed to use as a guide in collecting the data from the interviews. A study advisory committee, made up of business educators and people from business and industry, reviewed the interview schedule and study procedures. Also, a pilot study, involving a sample of five women in middle level management positions in business firms, was conducted for the purpose of determining content validity and appropriateness of the interview schedule.

There was agreement that the interview schedule and the data being collected were appropriate for meeting the objectives of the study.

Sample and Data Collection

The researcher conducted in-person interviews with 30 women in middle level management positions in 15 Fortune 500 companies. The companies were located in the midwest (Illinois, Missouri, and Indiana).

After reviewing the total number of Fortune 500 companies in the state of Illinois (50), Missouri (15), and Indiana (8), a proportional sample was randomly selected to reflect the number of companies in each of the states. A total of 15 companies were randomly selected, ten from Illinois, three from Missouri, and two from Indiana.

The Placement Service Office at Illinois State University was then contacted to assist in identifying the campus recruitment person for each of the companies. The campus recruitment person from each of the fifteen Fortune 500 companies was then contacted by telephone and was asked to assist in identifying two women in middle level management positions in the company. Names, position titles, and telephone numbers of thirty women managers were then obtained. Initial contacts with the women managers were then made over the telephone at which time dates, interview appointments, and arrangements were made. All thirty women managers that were contacted, consented to participate in the study.

Each interviewee received a letter confirming the interview appointment two weeks prior to the scheduled interview. From March to June, 1989, interviews were conducted with 30 women in middle level management positions in 15 Fortune 500 companies. The interviews focused on the career development and aspirations of the women managers. The interviews lasted from one and a half to two and a half hours. On the average, the interviews lasted two hours. The interviewer/researcher took extensive notes during each interview with additional write-up occurring after each interview.

Analysis and Findings

The major findings of this study are summarized in four major sections: (1) Description of Study Participants, (2) Background and Development of Participants, (3) Factors that have Assisted and Hindered Participants' Career Development, and (4) Future Career Goals, Perceived Barriers, and Actions Believed Necessary to Attain Positions Ultimately Aspired.

Description of Study Participants

Thirty middle level women managers at fifteen Fortune 500 companies were interviewed. The women managers worked in industrial corporations whose sales and assets varied from $500 million to $20,000 plus million and $600 million to $24,000 plus million, respectively. The median number of employees in these fifteen companies was 35,000. The study participants are employed in a variety of industries, which included the following: Aerospace, 4 (13%); Chemicals, 4 (13%); Computer, 4 (13%); Electronics,4 (13%); Food, 4 (13%); Petroleum Refining, 4 (13%); Industrial and Farm Equipment, 2 (7%); Pharmaceutical, 2 (7%); and Publishing/Printing, 2 (7%).

The participants range in age from 30 to 46 years, with an average age of 38.2 years. The majority (70%) of the women managers were between 35 and 44 years.

Twenty-three (77%) of the participants are married (includes remarried), while 5 (17%) are single (never married), and 2 (7%) are divorced. Of those participants who are married, 8 (35%) have been married more than once.

The ethnic origin of all but one study participant was Caucasian. The remaining one was Black.

Eighteen (60%) of the participants do not have children of their own, and 12 (40%) do have children of their own. The findings also indicate that participants have very small families with the average of .6 children.

Background and Development of Study Participants

Two types of background and development questions were asked. The first set related to the educational background of participants such as degrees and training attained. The second set of questions inquired about participants' work history. Such questions as job positions, employment, and work experience were included.

Educational Background. All of the participants with the exception of one have earned a bachelor's degree. Seventeen (57%) of the participants have earned a master's degree, and one has earned a doctorate degree. Major fields of study in undergraduate school were quite varied, as Table 1 reveals. The largest group, 8 (25%) graduated with a degree in mathematics. It is interesting to note that 20 (69%) of the participants' undergraduate degrees were not in business-related fields, and only 9 (31%) had undergraduate degrees in business-related fields (Business Administration, 4 (14%); Accounting, 4 (14%); Marketing, 1 (3%)). It may be assumed that, at this point in their lives, the participants had not yet made a managerial career choice. But, this changed drastically once the participants entered graduate school, as Table 2 illustrates. Of those obtaining master's degrees, 13 (76%) obtained a master's degree in a business-related field (MBA, 12 (70%); Administration & Organizational Behavior, 1 (65)).

In addition to their college education, all of the study participants had obtained additional training to further their knowledge. The topics most often pursued for additional knowledge were management and human relations type training.

Work History. The next area addressed was the work history of the study participants. Participants were asked to identify their current position title and department/area. The results included thirty different position titles, and seven different departments and/or areas. The seven different departmental areas include the following: Human Resources, 9 (30%); Management Information Systems, 7 (23%); Finance, 5 (17%); Marketing, 3 (10%); Accounting, 3 (10%); Engineering, 2 (7%); and Research 1 (3%).

Participants were also asked to identify the number of years of work experience that they have acquired, the number of years of managerial experience (including all levels of management experience), the number of years of experience as a middle manager, and the number of years it took to attain middle level management position.

The number of years of work experience acquired by participants range from 8 to 25 years, with an average of 15.1 years. The majority (77%) of the participants have 8 to 16 years of work experience.

The number of years of managerial experience (including all levels of management experience) that participants have had range from 3 to 17 years, with an average of 7.6 years of managerial experience. The majority (66%) of the participants have 3 to 8 years of managerial experience.

The number of years of experience that participants have had as middle managers range from 1 to 10 years, with an average of 4.5 years. The majority (57%) of the participants have 1 to 4 years of experience as a middle manager.

The number of years that it took participants to attain a middle level management position range from 1 to 20 years, with an average of 10.0 years. The majority (67%) of the participants attained their middle level management position in 5 to 12 years.

Factors That Have Assisted and Hindered Career Development

During the interviews, two types of career development questions were asked. The first set related to factors that assisted the career development/ progression of participants such as role models, mentors, and influential people. The second set of questions inquired about factors that have hindered the career development/progression of participants.

Factors That Assisted Career Development/Progression. Participants were asked if they had role models during the time they chose their careers. Twenty-three (77%) did not have role models, and 7 (23%) did have role models when choosing their careers.

Twenty-seven (90%) of the participants indicated having mentors during their professional careers, and only 3 (10%) indicated not having mentors. Table 3 shows that the largest group of mentors, or 23 (85%), was represented by managers, followed by directors, who represented 11 (41%) of the individuals identified. It is also interesting to note that of the 54 mentors identified, 45 (83%) were male and only 9 (17%) were female. A variety of functions were performed by mentors that assisted participants' career development. The five most frequent functions performed by mentors include the following: Provided participants with job opportunities/challenges to demonstrate their skills and abilities, 20 (74%); offered participants feedback on their performance, 19 (70%); gave participants useful advice, 17 (63%); shared his/her expertise with participants, 16 (59%); and encouraged participants to meet high performance standards, 15 (56%).

Participants were also asked to think back over their careers and to consider those people who have significantly influenced their career advancement. They were asked to select

the people who have provided them with substantial help, and without them their career progress may have been hindered or made considerably more difficult. Twenty-seven (90%) of the study participants indicated that their mentors were the individuals who most influenced their career advancement. The remaining 3 (10%) indicated a manager, supervisor, or husband as the individuals who most influenced their career advancement.

It is obvious from the results of this part of the study that mentors play an important role in assisting many participants in their career development/progression.

Participants were asked to identify factors that they consider to have been the most important to their career advancement. The six factors most frequently mentioned by participants as most important to their career advancement include the following: Educational credentials, 23 (77%); hard work, 22 (73%); mentors, 17 (57%); interpersonal/people skills, 15 (50%); demonstrated competency on the job (producing high quality work), 12 (40%); and willingness to take risks, 11 (37%).

Factors That Hindered Career Development/Progression. The next area addressed the factors that have hindered the career development/progression of the study participants. Participants were asked to identify "key events" and/or barriers that they have encountered in the past that have hindered their career progression. The six most frequent barriers encountered by participants in the past that have hindered their career progression include the following: Bosses who did not guide or encourage career progression, 17 (57%); sex discrimination, 12 (40%); lack of political savvy, 10 (33%); lack of career strategy, 9 (30%); unwillingness to conform to company norms, 8 (27%); and interpersonal conflicts, 8 (27%).

Future Career Goals, Perceived Barriers, and Actions Believed Necessary to Attain Positions Ultimately Aspired

In this section three types of questions were asked. The first set related to career goals and aspirations of participants such as ultimate career aspirations and reality of career aspirations. The second set of questions related to barriers/hindrances that participants think they will encounter in trying to attain the position to which they ultimately aspire. The third set of questions inquired about actions that participants think they will have to take in order to attain the position to which they ultimately aspire.

Career Goals and Aspirations. In order to determine the career aspirations of the study participants, they were asked to identify the highest position to which they ultimately aspire. They were asked to identify the level and title of the highest position which they ultimately aspire. On a scale from "Very Realistic" to "Very Unrealistic", participants were asked the reality of acquiring the highest position to which they ultimately aspire.

According to the findings the highest level positions ultimately aspired by 25 (83%) of the participants are top level management positions, while 5 (17%) of the participants ultimately aspire upper middle level management positions.

Information regarding the position titles to which participants ultimately aspire were grouped into five categories. According to the findings, twelve (40%) of the participants ultimately aspire to be directors; 10 (33%) aspire to be vice-presidents; 6 (20%) aspire to be managers; 1 (3%) aspires to be a chief financial officer; and 1 (3%) aspires to be a chief executive officer.

The findings reveal that 23 (77%) of the participants believe it is either very realistic or somewhat realistic that they will acquire the highest level position that they ultimately aspire (very realistic, 8 (27%); somewhat realistic, 15 (50%)); while 3 (10%) believe it is between somewhat realistic and somewhat unrealistic; 1 (3%) believes it is somewhat unrealistic; and 3 (10%) believe it is very unrealistic.

Overall, the findings suggest that most of the participants aspire to attain top level management positions and that they believe it is realistic that they will attain these positions.

Perceived Barriers/Hindrances to Attaining Positions Ultimately Aspired. The next area addressed the barriers/hindrances that participants perceive in attaining the positions to which they ultimately aspire. Participants were asked to identify the barriers that they think will hinder them from attaining the positions to which they ultimately aspire. The five most frequent barriers perceived by participants in attaining the positions to which they ultimately aspire include the following: Competition (less high level positions available and many talented/competent people wanting these positions), 15 (50%); family obligations (getting married, having children, wanting to spend more time with family), 13 (43%); being a woman, 12 (40%); not willing to give and/or give up what it takes to get the position, 8 (27%); and lack of education/MBA, 7 (23%).

Actions Believed Necessary to Attain Positions Ultimately Aspired. The final set of questions asked during the interviews inquired about actions that participants think they will have to take in order to attain the positions to which they ultimately aspire. There were various actions that participants believe they will have to take in order to attain the positions to which they ultimately aspire. The five most frequent actions that participants believe they will have to take in order to attain the positions to which they ultimately aspire include: Continue to demonstrate competency on the job (produce high quality work), 14 (47%); work hard (spend more time working), 12 (40%); get

experience/exposure in other areas/functions of company (move to other positions/areas to become more diversified, learn more about the company and how it functions globally), 12 (40%); make major contributions in present and future positions/area, 11 (37%); and obtain an MBA degree, 7 (23%).

Conclusions

The following are some major conclusions based upon the finding of the study:

1. The educational level of the women managers is exceptionally high. All of the women managers with the exception of one have earned a bachelor's degree, and over half have earned a master's degree.

2. The number of years of work experience acquired by study participants range from 8 to 25 years, with an average of 15.1 years. The majority of the study participants have 8 to 16 years of work experience.

3. The six major factors most frequently mentioned by study participants as pertinent to their success were educational credentials, hard work, mentors, interpersonal/people skills, demonstrated competency on the job (producing high quality work), and willingness to take risks.

4. The six major barriers most frequently mentioned by study participants as hindering their career development/progression were bosses who did not guide or encourage their career progression, sex discrimination, lack of political savvy, lack of career strategy, unwillingness to conform to company noms, and interpersonal conflicts.

5. The majority of the study participants ultimately aspire to attain top level management positions, and they believe it is either very realistic or somewhat realistic that they will acquire these positions.

6. There are a variety of barriers that study participants think will hinder them from attaining the positions to which they ultimately aspire. The three most frequently mentioned barriers were competition (less high level positions available and many talented/competent people wanting these positions), family obligations (getting married, having children, wanting to spend more time with family), and being a woman.

7. There are various actions that study participants believe they will have to take in order to attain the positions to which they ultimately aspire. The three most frequent actions that study participants believe they will have to take were continue to demonstrate competency on the job (produce high quality work), work hard (spend more time working), and get experience/exposure in other areas/functions of company (move to other positions/areas to become more diversified, learn more about the company and how it functions globally).

Recommendations

Based upon the findings and conclusions of this study, the following recommendations are presented for business educators:

1. Business educators at the college level who work with the career planning and development processes for women should use the information obtained from this study as a resource.

2. High school and college level business educators should use the information obtained from this study to inform young female students who aspire a career in management of the ingredients necessary for success, and the obstacles they may encounter as they steer themselves toward middle and senior level management positions.

3. Business educators should use the information obtained from this study to identify better ways to select and train women for management positions.

4. This study should be read, or made available to the various management departments in colleges throughout the country, as a guide for women who may aspire a career in management.

5. Business educators involved in the training and development of women managers should analyze the additional school and training obtained by the study participants and attempt to incorporate into their curriculum the information which encompasses these areas.

The following recommendations are presented for further research:

1. A study should be conducted on the career development and aspirations of men in middle level management positions in business firms, and a comparison should be made to the results of this study to identify any factors overlooked by women or given too much importance by women in a field which is still predominantly male.

2. A study should be conducted to compare the answers given by the women in this study to woman who are already in top level management positions, in order to identify any factors overlooked or given too much importance by women in middle level management positions.

3. A study should be conducted in more depth to explore and expand the information which pertains to mentors. This study did not examine when mentors or other career enhancing relationships were formed. An investigation of this matter, as well as functions performed at different stages of the managerial women's career development, could provide valuable information regarding how one moves through various career advancement stages.

4. The results of this study indicate that there are many different types of mentors and that mentors perform various functions that assist women in their career development. A study should be conducted to determine why mentors and other career advancement relationships choose certain proteges to sponsor, and what prompts a mentor to exert a great deal of influence on behalf of a protege. What does the women do that motivates these individuals to provide assistance? What is the nature of the reciprocity as perceived by the influential other?

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TABLE 1
Study Participants' Bachelor Degrees Majors
n=29

Major Field	(f)	%
Mathematics	(8)	28
Business Administration	(4)	14
Accounting	(4)	14
English Education	(3)	10
Political Science	(2)	7
Journalism	(2)	7
Biology	(2)	7
Public Administration	(1)	3
Industrial Engineering	(1)	3
Chemistry	(1)	3
Marketing	(1)	3
TOTALS	(29)	100

TABLE 2
Study Participants' Master Degrees Majors
n=17

Major Field	(f)	%
MBA	(12)	70
Administration and Organizational Behavior	(1)	6
Communication Arts	(1)	6
Biochemistry	(1)	6
English Education	(1)	6
Education	(1)	6
TOTALS	(17)	100

TABLE 3
Title and Gender of Study Participants' Mentors
n=27

	Female		Male		Total	
Title	(f)	%	(f)	%	(f)	%
Manager	(5)	19	(18)	67	(23)	85
Director	(1)	4	(10)	37	(11)	41
Vice-President	(1)	4	(5)	19	(6)	22
Boss/Supervisor	(2)	7	(2)	7	(4)	15
Comptroller	(0)	0	(3)	11	(3)	11
Executive Vice-President	(0)	0	(2)	7	(2)	7
Husband	(0)	0	(1)	4	(1)	4
Father	(0)	0	(1)	4	(1)	4
President	(0)	0	(1)	4	(1)	4
Assistant to President	(0)	0	(1)	4	(1)	4
Treasurer	(0)	0	(1)	4	(1)	4

Multiple responses were accepted.

Using Computer Spreadsheets for Instruction in Cost Control Curriculum at the Undergraduate Level

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Abstract

This paper discusses how the instructional use of spreadsheets can help focus student attention on the influence of cost control variables and provide increased practice opportunities for students learning cost control concepts. Discussion addresses the question of whether any instructional improvements would justify increased use of computer spreadsheets for teaching content in undergraduate cost control courses. Keywords: spreadsheets, cost control, achievement, application software, instruction.

NOTE: This work represents a small portion of a comprehensive study on the effects of computer spreadsheets on cost control concept attainment to be published in its entirety in the near future.

Introduction

The microcomputer has dramatically affected twentieth century education. Microcomputers offer educators unique opportunities for presenting curriculum and for addressing research questions about motivation, achievement, and long term consequences of this new technology (Lepper and Chabay 1985; Roblyer 1985).

> The ability to use and understand computing is becoming as important as our ability to understand and handle the written word. A computer literate population is as necessary to an information society as raw materials and energy are to an industrial society (Deringer and Molnar 1982, p. 3).

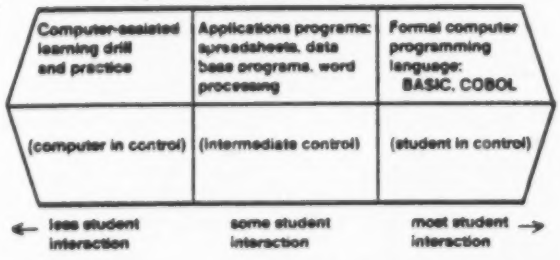
Not all educators would support the above quote in full; however, the basic Apremise is generally accepted throughout the educational community (Mynatt, Smith, Kamouri, and Tykodi, 1986). As microcomputers continue to pervade the classrooms of the country, the magnitude of impact is less clear. Therefore, education must address three questions: 1) What is the true impact of using computers in the classroom with respect to achievement, cost-effectiveness and unanticipated side-effects? 2) What curriculum content should be taught with computers? 3) How should this be accomplished?

Computers today represent a powerful tool for education. The computer of the year 2000 will be more powerful, changing the life of both teacher and student. "But it is not the tool that gets the job done, the person using it does," (Luke, et al, 1986, p. 8). Computer spreadsheets allow for the use of real-world problem sets and at the same time permit the student to work on concepts associated with the curriculum content as opposed to the mechanics of the problem. Furthermore, spreadsheets enable the user to capture and save the entire concept for future scrutiny and review; they provide the user with an array of feedback options.

Computer Software

Traditionally, most computer use in schools has been concentrated in two areas: pure programming skills such as BASIC or COBOL; and orientation/tutorial and practice programs commonly referred to as computer assisted learning or CAL (California State Department of Education 1985). Figure 1.01 suggests a continuum between CAL software programs and formal programming users as a function of control. Application software lies between the two traditional approaches offering the user structured interaction.

Figure 1.01
Computer Use and Student Control Continuum


Computer-assisted learning drill and practice
Applications programs: spreadsheets, data base programs, word processing
Formal computer programming language: BASIC, COBOL
(computer in control)
(intermediate control)
(student in control)
← less student interaction
some student interaction
most student interaction →

Unlike CAL software, which commonly drills students on particular content matter such as vocabulary or mathematical computation (drill and practice), or presents information and suggest where the student should go next in the program (tutorial), spreadsheets provide an alternative dimension. Spreadsheets are tools designed to organize

data, compute numeric variables and present solutions to real problems in a timely manner. The "tool" school of thought maintains that the computer is one of many tools devised by humans to help them perform certain tasks. What is critical is for the individual to use the computer to meet his or her need (Megarry, 1983).

Secondly, spreadsheets are used to illustrate financial models and other related applications through the use of data queries and sorts. This characteristic can be further exploited instructionally with the use of a special overhead projector, providing students the opportunity to see the effect of different numeric variables on model output. In essence, spreadsheets provide educators with a wide array of options to help promote learning financial concepts.

One of the single most important reasons for using application software for teaching is the amount of additional time a student may then have to spend on content-related problems. Ease of calculation provided by spreadsheets makes possible many practice opportunities related to numerical analysis. In addition, these application programs, such as spreadsheets, may also provide opportunities for the development of critical-thinking and problem-solving skills (Eastment, 1986).

Ironically, few students in the public schools use spreadsheets and data bases as learning tools in appropriate courses. Lambrecht (1986) found that business teachers in Minnesota avoid the computer for the teaching of content. Her findings reported an average of three topics out of a possible 19 were taught using the computer. Reasons for teachers not using application software for teaching related content in the classroom might be linked to the lack of available hardware. Furthermore, empirical research designed to address questions about computer spreadsheet effectiveness, appropriate curriculum content and methodology is very scarce.

More on Computer Spreadsheets

An illustration of computer technologies that can augment mental functioning is the electronic spreadsheet, such as Multiplan, Quattro and Lotus 1-2-3. Several million copies have been sold since they appeared in 1979 (Pea, 1985, p. 167). Electronic spreadsheets are software programs for micro-computers which serve as powerful tools. The screen images physically resemble paper ledger sheets, with cells organized in rows and columns. However, in an electronic spreadsheet, one can place a label, number, calculation, or a formula in any spreadsheet cell, which can subsequently be edited, copied, or moved. The results of calculations in the formula area appear as the content of the cell. The most dramatic difference from static paper spreadsheets is that one can change cell entries and see the repercussions of that change recalculated immediately throughout the spreadsheet (Levy, 1984). This what-if property has dramatic consequences for the development and use of what-if budgeting and cost control models.

The typical spreadsheet also offers some limited programming language capabilities, including the ability to manipulate strings, write macros and to do interactive calculations. In addition, built-in functions can be combined to produce a plotting capability, thereby providing both a graphical and numerical method of illustrating relational concepts. Although the spreadsheet program requires that the user be able to specify the relationships to be explored, it does not require that the end-user be a programmer (Hewett, 1985).

Similarly, providing some students with spreadsheets as tools to experiment with cost control concepts vs. a lecture-discussion format without spreadsheets should result in different outcomes because of the unique activities associated with using spreadsheets.

Problem Statement

What is the effect on understanding cost control concepts when computer spreadsheets are used to: display cost control models, change key numeric variables within the cost control concept, provide multiple examples of concept use, allow active learner participation in model development and evaluation of spreadsheet feedback in contrast to using lecture/discussion methods to present and practice the same content?

Purpose of the Study

The purpose of this paper is to discuss the important issues surrounding the use of computer spreadsheets for the teaching of undergraduate cost control concepts. Methods for using the computer spreadsheet will be explained and supported with information processing theory.

Need for the Study

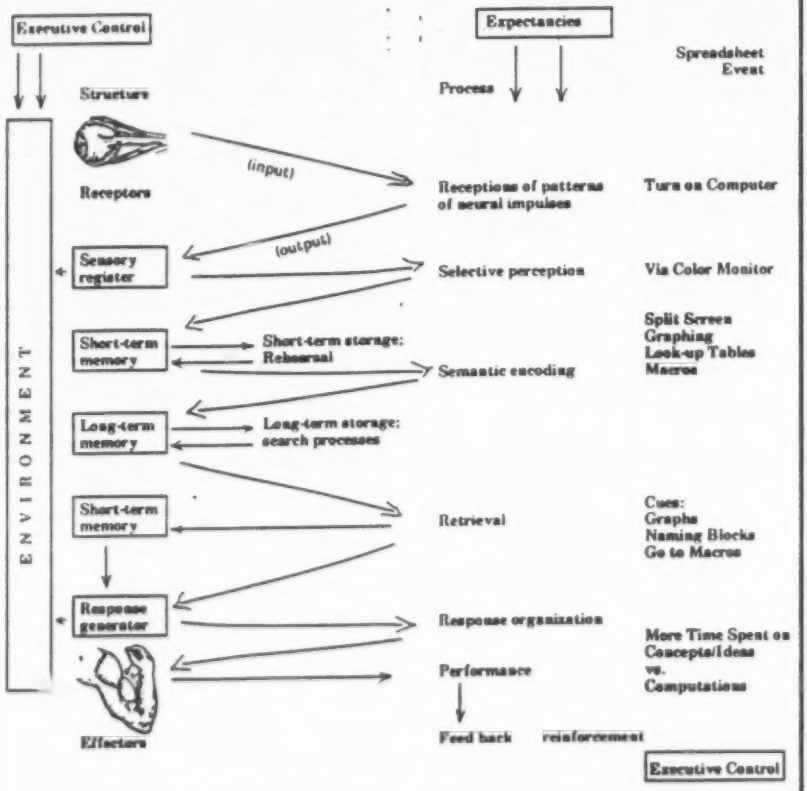
Some of the more critical unanswered questions in education today deals with computers. Specifically, do computers significantly improve instructional methods and consequently student performance? Literature in the field contains numerous articles pertinent to computer assisted instruction (CAI) or computer assisted learning (CAL). However, there is no empirical research to support the use of application software (spreadsheets) for the teaching of content. Robert Gagn offers the following thoughts on the subject of computers and instruction.

> The computer remains a highly intriguing way of presenting instructional content, and of taking some account of the learner's response to content. Maybe learners simply prefer to look at screens rather than pages. Maybe they like the pressing of keys as a kind

> of concrete action that is not demanded by a page of printed text. Maybe the reassurance of a visual message displaying an answer to a question is inherently more pleasing than looking up the answer on a printed page (1982, p 3).

The computer spreadsheet is a powerful tool, it provides the user with numerous opportunities to experiment with and evaluate information/data. If used appropriately, spreadsheets can offer educators new variables in the area of instructional methodology. By granting students the use of spreadsheets to process, apply, and evaluate cost control concepts, it is possible to influence the events of learning (see Figure 2.01) as outlined by Gagn and Briggs (1974). Identifying which instructional event(s) the spreadsheet is influencing, and why, would be helpful for designers of instruction. If learners do prefer screens to written pages or pressing keys instead of using a pencil, educators need to know the degree of impact this has on learning performance. Understanding the specific outcomes of application software on student performance in relation to the events of instructions will help educators address issues surrounding: 1) the role education should play in preparing students to use application software as tools in appropriate curriculum; 2) the best way to integrate application software with content; and 3) the impact of application software feedback onstudent performance on concept attainment.

FIGURE 2.01
The Information-Processing Model



Processes of learning and memory as inputs to and outputs from postulated structure oof the information-processing model (Gagne, 1977, p. 58). (Spreadsheet events added by researcher.)

Assumptions

The following assumptions are made:

1. The external events and dynamics of a learning situation influence learning. These include: availability of stimulation to activate attention, variety and type of cues available for student perception, suggested schemes for coding information, suggested schemes for remembering/retrieval, opportunities to transfer learning to a new situation, actual student performance and reinforcement/feedback.

2. The use of computer spreadsheets as tools provide unique external events with respect to how information is processed. This is attributed to the spreadsheets' capability to stimulate student attention; promote schemes for coding and retrieval/storage of information; permit the student to develop, apply and manipulate a concept in its entirety--saving the work for easy retrieval and review; allow the user to change numeric variables--resulting in unlimited what-if testing; and provide the student with timely evaluation of spreadsheet feedback.

Nature of Instruction

To reach the objectives of this study two instructors taught one experimental group and one control group each. The population of each was set at 41, for a total of 82 subjects.

For the experiment, all classes met in the same building utilizing a traditional classroom for the control groups, and the computer laboratory for the treatment groups. This facility is equipped with 21 IBM PS-2/Model 30 computers utilizing a local area network (LAN). This system uses the PS-2/Model 60 as a file server, with each individual PS-2/Model 30 workstation having the ability to access programs loaded on the file server. The Quattro spreadsheet was used for the experiment.

The experimental groups (spreadsheets) were introduced to the Quattro spreadsheet through a six lesson tutorial program, published by the software company (Getting Started with Quattro, 1987). Two weeks of instructional time was allocated to orientation and instruction on how to use the spreadsheet.

Instruction in both the experimental and control groups was accomplished by the instructor introducing cost control concepts via the computer. A special overhead projector (SHARP QH-50 Computer Projection Panel) was used to display information from the instructor's computer monitor onto a large wall screen, allowing the entire class to see a functional spreadsheet perform. In addition, each student was provided with a hard copy of thespreadsheet model to serve as resource and provide step-by-step instructions on how to complete the concept assignment.

All subjects were introduced to the concepts by the instructor demonstrating each one of the cost control models on the computer and a QA-50 (special overhead) projector. In addition, the student was provided hard copies of the concept lesson and a cost control textbook.

In the experimental group, the students were provided with computers to allow for the building of their own model worksheet using the spreadsheet at their work station, or calling up a partially completed worksheet and completing the model by entering the necessary formulas and formats to make the spreadsheet operative. Subjects could compare their own spreadsheet model to the instructors by utilizing the computer file server. The student had regulated access to a collection of cost control concepts on the file server.

Control groups were instructed through an identical method. The instructor demonstrated the cost control concept using the computer spreadsheet and presented this material via the QA-50. However, the control group did not have use of a personal computer at their workstation to serve as a resource for work and practice on cost control concepts.

The researcher believes the external conditions which contribute to learning in a traditional lecture-discussion approach will be considerably different from the external conditions present when computer spreadsheets are available for each student to serve as a tool.

A close examination of two environments (one with spreadsheets--one without) identify how and why the environments are different as well as alike. Specific learning phases include: the stimulus; feedback; and opportunity for practice. The spreadsheet offers users external conditions which encourage additional experimentation and can possibly draw out a greater response from students with spreadsheet availability vs. those without, Table 1.01 compares and contrasts the role spreadsheets play in the learning phases and relates it to the instructional events as outlined by (Gagn , 1977).

Table 1.01

The Instructional Events	Learning Phases Associated with Experiment
Example of how a concept was presented for learning in the experimental group (spreadsheets) and the control group (no spreadsheets).	
All students participating in the study received a copy of the major concept to be discussed. This resource included the following information and characteristics: a) The cost control concept was provided in written form. This model concept was produced by a computer spreadsheet and did depict actual data under two different sets of conditions to help the student see a comparison and contrast of the key variables, and how this influences the end results. b) The model concept did include the following attributes: description of the cost control concept, how the concept is used in the cost control area, and pertinent formulas associated with the concept. c) The model concept also included references to rows and columns as found on a working spreadsheet.	1. Activating motivation: The individual strives to achieve the goal of learning cost control concepts, and in the experimental group the use of a computer spreadsheet. Differences between treatments: The expectancy of learning computer spreadsheets in the experimental group coupled with heightened motivation. Implication: Heightened motivation resulting from the novelty associated with computers and individual student expectancy during early stages of the experiment, however, this expectancy is likely to decrease over the 16 week study and is unlikely to have a significant effect on cost control concept attainment over the long run.
Students in both groups were introduced to the model concept by the instructor using a lecture-discussion approach.	2. Informing learner of the objective: Communicating to the learner the desired behavior or performance they will be capable of as a result of the lesson. Differences between treatments: None
Students in the experimental group and control group did witness a demonstration of the cost control concept on the instructor's computer spreadsheet; the screen image was displayed via a special projector on a large wall screen. All students witnessed how the model works. Actual data was manipulated using a "what-if" orientation. Lecture-discussion focusing on the cost control concept will follow.	3. Directing attention: This event in the lesson is directing attention to the stimuli which are an inherent part of the learning task. In this study both control group and experimental group will witness the same demonstration. Difference between treatments: None 4. Stimulating recall: This event is designed to help the learner access previously learned capabilities. Differences between treatments: None
Students in the control group spent time developing a model of the same cost control concept, however, this group utilized the chalk board instead of the computer spreadsheet to build the model. Students in the control group did have access to lecture notes, textbook, and other class handouts to serve as resources--as well as a source of feedback.	5. Providing learning guidance: These events form a part of instruction during this learning phase. The amount of learning guidance provided (the length and complexity of the communication or other form of stimulation)

(table continues)

The Instructional Events	Learning Phases Associated with Experiment
Students in the control group spent time developing a model of the same cost control concept, however, this group utilized the chalk board instead of the computer spreadsheet to build the model. Students in the control group did have access to lecture notes, textbook, and other class handouts to serve as resources–as well as a source of feedback.	will vary depending on the content and type of students involved in the learning process. The most common characteristic to be sought in learning guidance is the orientation to the objective. In whatever form it is given, whether as verbal statement, hints, diagrams, pictures, or spreadsheets the purpose is to insure a form of encoding which will enable the learner to recover what he had learned and display it as some kind of performance at a later time. Differences between treatment: Experimental group will have access to computer spreadsheet, providing them with unique cues for storing and recalling data. Special features of the spreadsheet include: the input line, status line, and special message windows. These are examples of stimuli unique to the computer spreadsheet environment, continually serving the student. Implication: Students in the experimental group are expected to have a marked edge over the control group because of encoding advantages provided by the spreadsheet. Considering the outcome of cost control concept attainment, (the ability to apply the concept to a realistic situation) the spreadsheet provides the student with a unique opportunity to actually build the idea on a electronic tablet, demonstrate the finished product, receive feed back on some numeric formulas and develop a variety of personalized cues for future reference. This difference suggests a definite advantage regarding learning and overall performance for the experimental group.
A cost control concept problem was distributed to both experimental group and control group. Students were required to answer questions regarding the cost control concept.	6. Enhancing retention: Instructional provisions for enhancing retention and receipt of feedback take the form of spaced reviews. This step will preface the distribution of a review problem distributed to both groups. Difference between treatments: None 7. Promoting transfer of learning: Promotion of transfer is brought about by instruction which provides novel tasks for the student, spaced over time, and calling for the use of what has previously been learned. This phase often takes the form of solving a problem or designing an investigation for a given problem. Difference between treatments: The experimental group will have the use of the spreadsheet tool to assist in getting at the answer, building the control model, or predicting a outcome. Using the notion that

(table continues)

The Instructional Events	Learning Phases Associated with Experiment
	the spreadsheet tool is a "amplifier of cognition," the user will have the advantage of being able to perform more problems in less time. Implication: The experimental group will benefit because of the increased exposure to practice problems afforded by the spreadsheet. The spreadsheet is likely to improve the transfer phase of learning because of increased activity.
Both groups participated in a review and discussion activity focusing on the cost control concept. Feedback was provided in the form of correct answers (attached to the original model) and a presentation of the model using the instructors computer and special screen projector for all students to see. In addition, students in the experimental group had access to a completed model accessible from computer file server. Group discussion explained the outcomes and identified the correct response(s). Each student was able to compare their work to the correct copy displayed on the screen or printed on the handout. Both groups were administered a concept quiz after the review and discussion period was completed. The concept quiz measured how well the subject understood the concept (number correct) and the amount of time (in minutes) it took to complete the quiz. The experimental group used the computer spreadsheet to work through the concept, while the control group relied on the hand calculator.	8. Eliciting the performance; providing feedback: It is important to provide an occasion for the display of the performance by the student. Having learned, the student needs to "show what he can do," not only for the teacher's purpose, but for his own learning. This is referred to as informative feedback. Difference between treatment: The experimental group will have the use of spreadsheets to serve as a electronic text or resource. Students will be able to check their performance against the electronic model they recently completed--verifying the correctness of formulas and accuracy of computation. Control groups will have use of hard copy notes and handouts, which are static in nature, and will not permit the easy changing of key variables. Implication: Students in the experimental group are likely to check their work against their spreadsheet model for accuracy and correctness more often then the control group students. This is explained by the limited capabilities of static paper copy information (control group) vs. a dynamic spreadsheet model--capable of recalculations, and in some instances--alerting the user to errors in logic and formulas.

Summary

The instructional use of spreadsheets can improve educational outcomes in undergraduate cost control curriculum through:

1. *The Tool Metaphor.* Provide the learner with a powerful tool that will allow for increased practice opportunities, serve as a contemporary tool to apply cost control concepts and offer "what-if" testing scenarios.
2. *The Medium and Method.* Serve as an efficient vehicle to transport educational concepts from teacher to students via special technology allowing for the demonstration of cost control concepts using real data. The computer spreadsheet medium will allow the instructor to use a variety of methods to present material to students--increasing the chances of identifying the optimum method.
3. *Teaching Valuable Technical Skills.* Expose the student to the technical skills associated with personal computers and application software, teaching them how to use computer technology in the work environment they plan to pursue as a career.

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1985 GAMMA SIGMA: Central Michigan University, Mt. Pleasant, MI 48859
1986 GAMMA TAU: University of Central Arkansas, Conway, AR 72032
1986 GAMMA UPSILON: Robert Morris College, Coraopolis, PA 15108
1986 GAMMA PHI: Central Washington University, Ellensburg, WA 98926
1988 GAMMA CHI: University of Missouri--Columbia, Columbia, MO 65211

EXPANDING OUR RESEARCH BEYOND THE TECHNOLOGY

DELTA PI EPSILON, founded in 1936, is a national honorary professional graduate society for men and women devoted to the advancement and professionalization of business education. Through its ideals of scholarship, leadership, and cooperation, the society strives to make significant and unique contributions to professional growth and scholarly achievement in business education. In the words of its founder, Dr. Paul Lomax, can be seen the scope of the society: "The professional interests of Delta Pi Epsilon encompass the whole of business education in relation to the entire fields of American business and American education. Its membership . . . must always think in terms of the common good and advancement of all our business teachers and of all students who pursue courses in business education."